

Prepared for:

Chino Mines Company
Hurley, New Mexico

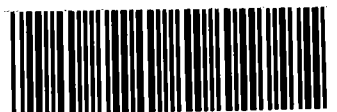
Administrative Order on Consent

Interim Remedial Action
Groundhog No. 5 Stockpile
Site Investigation Report
Hanover and Whitewater Creeks
Investigation Units

Prepared by:



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1. INTRODUCTION

This report was prepared by Golder Associates Inc. (Golder) for Chino Mines Company (Chino) to report the results of a site investigation of the Groundhog No. 5 Stockpile, within the Hanover/Whitewater Creeks Investigation Units (H/WCIUs). The site location is shown in Figure 1. The purpose of the investigation was to define the chemical nature and physical extent of the Groundhog No. 5 Stockpile sufficiently for Chino to evaluate interim remedial actions. The investigation was consistent with a long-term strategy for closure/closeout and meets standards prescribed in the Administrative Order on Consent (AOC) agreement and the New Mexico Mining Act and Rules.

The study area is shown on Figures 2 and 3. The objectives of the investigation were to:

- characterize the chemical composition of the stockpile and underlying materials,
- estimate the thickness of the stockpile,
- delineate the surface water sub-basin draining to the channel in Lucky Bill Canyon,
- identify any seeps and springs in the immediate area, and
- characterize the chemistry of the surface water in Lucky Bill Canyon below the stockpile.

Chemical characterization of the stockpile materials included acid-base accounting (ABA), total metals analysis, paste pH, and Synthetic Precipitation Leachate Procedure (SPLP). This report describes the results of these analyses and the predicted environmental behavior of the stockpile material.

Ten stockpile samples were collected from three test pits excavated by trackhoe on November 10, 2004.

This work plan is organized into six sections as follows:

Section 1 – Introduction describes strategy and organization of this report;

Section 2 – Site Description summarizes the history and physical setting of the stockpile;

Section 3 – Summary of Field Investigation discusses the test pit investigation, surface water drainage basin mapping, spring surveys, and surface water sampling, and summarizes sampling and analytical methods;

Section 4 –Results of Field Investigation – presents the results of the chemical and textural analyses, and surface water quality;

Section 5 – Conclusions – presents conclusions from the site investigation and recommendations for stockpile reclamation; and

Section 6 - References - lists the references used in preparing this document.

2. SITE DESCRIPTION

The Groundhog No. 5 Stockpile is a small stockpile (less than 2 acres) associated with the Groundhog No. 5 Shaft located on the north wall of Lucky Bill Canyon near its confluence with Bayard Canyon. The location of the stockpile is shown on Figure 2. Infrastructure associated with the operation has been removed, and the shaft has been closed.

The primary ores at the site consisted of lead and zinc sulfides occurring in mineralized veins below the Sugarlump and Kneeling Nun Tuffs visible at the surface in the canyon. The tuffs overlie Cretaceous-Tertiary sediments (the Colorado Formation), which in turn overlie a series of Paleozoic limestones and shales. Stockpile material types at the site include limestone, granodiorite, diorite, quartz monzonite, and tuff. Iron staining is minimal and appears to be restricted to small, isolated locations on the stockpile associated with finer-grained, mineralized material.

The stockpile obscures original surface topography, but visual inspection of the toe of the stockpile indicates that it was probably initially situated on a steep slope and, because area soils are generally relatively thin, that bedrock was likely at or very near the pre-mining land surface.

Two shallow groundwater monitoring wells (GH-97-03 and GH-97-04) are located adjacent to the stockpile (Figure 2). These wells were installed under the AOC in 1997 to collect samples of shallow groundwater in the alluvium/colluvium perched on the bedrock surface. They were sampled and analyzed for dissolved metals in August and September 1997, before and after rain events (Daniel B. Stephens and Associates, Inc, 1997). Metals concentrations in Well GH-97-03 did not exceed New Mexico Water Quality Control Commission standards (Golder, 2000). Well GH-97-04, at the toe of the Groundhog No. 5 Stockpile, was dry. The wells were inspected again in July 2004. Well GH-97-04 was dry. Well GH-97-3, which is located in the channel in Lucky Bill Canyon, was silted in due to flooding.

3. SUMMARY OF FIELD INVESTIGATION

Golder conducted a field investigation of the site on November 11, 2005. The field investigation included:

- surface water drainage mapping,
- surface water sampling,
- inspection for the presence of springs and seeps,
- test pit excavation and geologic logging, and
- sampling of the stockpile materials.

Each of these components of the field investigation is described below. Results of the investigation are discussed in Section 4.

3.1 Surface Water Drainage Mapping, Spring and Seep Survey, and Surface Water Sampling

A visual inspection of the drainage basin was conducted for the purpose of identifying surface water drainage patterns at the site, interaction between surface water and stockpile materials, and any active seeps or springs. No springs or seeps were observed at or near the site.

The surface water drainage basin was visually inspected and sketched on a site topographic map. Surface water flow was observed in the stream channel of Lucky Bill Canyon. A surface water sample was collected by Chino staff as per Standard Operating Procedure (SOP) 13, "Field Sampling of Stream Channels, Springs, and Seeps." The sample was collected in the channel immediately downstream of the stockpile, with concurrence from New Mexico Environment Department (NMED) staff. Surface water samples were shipped directly to SVL Analytical, Inc. (SVL) by Chino.

3.2 Test Pit Excavation and Sampling

Three test pits were excavated in the stockpile during the November 10, 2004 investigation. Test pit locations were selected by the Project Geologist (Jen Pepe, Golder) with

concurrence from the Chino Project Manager (Pam Pinson) and NMED staff (Phil Harrigan).

3.2.1 Test Pit Excavation

The test pits were excavated by James Hamilton Construction Company (Hamilton) using a PC22 OLC trackhoe. Test pit locations are shown on Figure 3. Chino conducted a utility location survey prior to test pit excavation.

The stockpile test pits were logged according to the Unified Soil Classification System (USCS), with emphasis on noting stratification, moisture conditions, secondary mineralization, and lithology of the mine rock. Detailed logs for the stockpile test pits are included in Appendix A. Test Pits GH5-1 and GH5-2 were excavated to the maximum reach of the trackhoe (20 to 22 feet below ground surface [ft bgs] and Test Pit GH5-3 was excavated to refusal at bedrock (7 ft bgs). The stratigraphy, staining, and the presence of roots was noted.

Following excavation, the dimensions of each test pit were measured and the pit was backfilled. After backfilling, a stake was placed in the approximate center of the test pit, and surveyed by Chino.

3.2.2 Test Pit Sampling

Subsamples from each of the three test pits were collected during test pit excavation. Samples were collected from the pit walls from the ground surface to a depth of 4 feet according to SOP 21 (Chino/Steffen, Robertson, and Kirsten [SRK], 1997), Sample Collection from Soil Borings, Excavations and Hand Dug Pits." Samples were documented on the test pit logs (Appendix A). Below 4 ft bgs, samples were collected from the excavator bucket or spoils pile as described below.

- The backhoe operator collected a volume of soil/stockpile with the bucket of the backhoe from each 2-foot interval or distinct layer and emptied the bucket on the ground in the sampling area.
- The Golder field geologist described the stockpile characteristics by visual inspection and soil layers according to American Society for Testing and Materials Method D-2488, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)," which is based on the USCS, but provides more detail. The Chino geologist provided descriptions of the lithology of the clasts.

- Approximately 1 gallon of the material was transferred to a clean plastic bag, labeled with the depth interval, and held until the excavation was complete.
- Samples from each 2-foot interval were composited by placing the materials from the plastic bags together on a clean sheet of plastic and mixing them together thoroughly. The subsamples were photographed. The subsamples were composited based on layering and types of materials present (Section 4). Subsample compositing was decided jointly by Golder, Chino, and NMED following excavation of each test pit. In some cases, a single subsample was determined to be representative of a layer, and was not composited with other subsamples.
- Two splits of approximately 1 kilogram each were collected from the composited materials, placed in plastic Ziploc™ bags, and labeled according to SOP 4 "Sample Custody and Documentation Procedures." Samples were doubled-bagged with labeling on the inner and outer bag. One of these splits was sent to SVL Analytical in Kellogg, Idaho and the other split was sent to Energy Laboratories, Inc., in Billings, Montana.

Samples were packaged and shipped to the laboratories according to the procedures given in SOP 5, "Packaging and Shipping of Environmental Sample Containers." A chain-of-custody form was completed listing each sample and accompanied the samples to the analytical laboratory. Sample chain-of-custody procedures are detailed in SOP 4, "Sample Custody and Documentation Procedures."

A quality assurance/quality control (QA/QC) sample was collected during the field investigation as outlined in SOP 3, "Field Quality Control." The QA/QC sample was a Blind Field Duplicate (sample GH5 3A). A Blind Decontamination Rinseate Blank was not collected because sampling was conducted using only clean, gloved hands and no other equipment.

3.3 Decontamination Procedure

No reusable equipment was used during sampling; therefore, no decontamination was required. The excavator bucket did not require decontamination because saturated materials were not encountered and the bucket remained free of residual soils between subsample collection.

4.0 RESULTS OF FIELD INVESTIGATION

This section summarizes the chemical composition of the stockpile materials, the suitability of the stockpile materials as a soil cover, and the quality and occurrence of surface water. Volume calculations for the stockpile were submitted under separate cover by Engineers Inc. (Engineers Inc., 2005).

4.1 Geologic Descriptions

Stockpile material types observed on the surface and in test pits were primarily limestone, granodiorite, diorite, and quartz monzonite. Layering of the stockpile and underlying materials in the three test pits includes:

- **Limestone** – Occurred as a surface layer over the entire stockpile in thicknesses from 2 to 15 feet,
- **Quartz Monzonite/Granodiorite** – Occurred from the base of the limestone layer to the pre-mining surface in thicknesses up to 20 feet,
- **Pre-mining Surface** – Disturbed colluvium with tuff clasts mixed with some stockpile materials, and
- **Underlying Sugarlump Tuff Bedrock.**

Stockpile materials were generally gravelly sands and sandy gravels (Appendix A). The matrix was moist to wet, but no saturated zones were encountered.

The upper layer of the stockpile is composed primarily of angular limestone gravel. In some areas on the stockpile surface, the limestone contained minor sulfide mineralization and iron staining. The limestone layer was 4 feet thick in Test Pit GH5-1, which was excavated in the center of the stockpile, parallel to the slope face. Minimal mineralization and staining were observed in Test Pit GH-1. The limestone layer in Test Pit GH5-2, which was excavated near the crest of the stockpile perpendicular to the slope face, dipped steeply toward the slope face, as would be expected. The layer ranged from 2 to 19 feet thick. The location for Test Pit GH5-2 was selected based on the presence of iron staining at the surface to investigate the vertical extent of the staining. Staining and some sulfide mineralization extended to approximately 6 inches bgs and was laterally discontinuous. A grab sample was collected from this 6-inch layer. Limestone in Test Pit GH5-2 below 6 inches bgs was unmineralized. In Test Pit GH5-3, the limestone layer was unmineralized and approximately 2 feet thick, directly overlying the premining surface.

The lower portion of the stockpile comprises primarily granodiorite and quartz monzonite. This lower layer was generally unmineralized, contained occasional limestone clasts, and reacted with hydrochloric acid (HCl), even in the absence of limestone. The granodiorite and monzonite were variably weathered, with feldspar crystals producing clay lenses and weathering rinds. Layering was observed based on the lithology (primarily diorite or monzonite), color, and grain size, but this unit is relatively homogeneous. The quartz monzonite/granodiorite layer overlaid the pre-mining surface in Test Pit GH5-1. Test Pit GH5-2 did not extend below the base of the stockpile materials.

The pre-mining surface was characterized by the presence of tuff clasts, a finer-grained matrix, and a weaker reaction to HCl. The pre-mining surface was encountered at 20 ft bgs in GH5-1 and at 2 ft bgs in GH5-3. Competent bedrock was only encountered in GH5-3, at a depth of 7 ft bgs.

4.2 Laboratory Chemical Analysis and Interpretation

Geochemical characterization included ABA, paste pH, SPLP, and total metals analysis. Analyses were performed in accordance with the following methods:

- Total Metals Analysis (Digestion Method 3050),
- ABA (Modified Sobek),
- Paste pH (ASA Method 9), and
- SPLP (Method 1312).

Samples were air-dried and crushed to 3/8-inch according to SPLP Method 1312 in the laboratory prior to analysis. An aliquot of each sample was pulverized to minus 160 mesh (approximately 0.09 millimeter) for ABA (Modified Sobek), paste pH, and total metals analysis (Method 3050).

Laboratory analyses for characterization of the material as a growth medium included:

- physical characteristics (texture, Method ASA15-5);
- saturated paste pH and conductivity (Method ASAM19-32);
- phosphorus (Method ASA24-5);
- nitrogen (ASA38-3); and
- organic matter (ASA29-3).

4.2.1 Geochemical Interpretation

Acid-base Accounting

The ABA results are presented in Table 1. Figures 4 through 9 provide graphical representations of the pertinent results.

In accordance with Price (1997), the following screening criteria were used to classify the samples in terms of their acid generation potential:

ARD Potential	Screening Criterion	Comments
Likely	Neutralizing Potential/Acid Potential (NP/AP) < 1	Likely ARD generating unless sulfide minerals are non-reactive
Possibly	$1 < \text{NP/AP} < 2$	Possibly ARD generating if NP is insufficiently reactive or is depleted at a rate faster than sulfides
Low	$2 < \text{NP/AP} < 4$	Not potentially ARD generating unless sulfides are preferentially exposed or extremely reactive in combination with insufficiently reactive NP
None	$\text{NP/AP} > 4$	Not acid generating

ARD = acid rock drainage

NP = neutralization potential

AP = acid potential

A fifth category follows an empirical rule of thumb. Materials with a pyrite sulfur content less than 0.3 percent and a paste pH greater than 5.5 generally are considered non-acid-generating regardless of their neutralization potential/acid potential (NP/AP) ratio.

Note that these criteria can only be used to identify the potential of a material to generate acid; ABA results may not be able to predict the likelihood of acid generation and rate at which acid generation occurs. Long-term testing (e.g., humidity cell) and/or use of field testing/observations are generally required to address the latter issues.

Figure 4 shows the pyrite sulfur versus the total sulfur content. Sulfide sulfur accounts for approximately 41 percent of total sulfur on average, with sulfate sulfur and residual sulfur

on average representing approximately 51 and 8 percent, respectively. This is further illustrated by Figure 5, which shows sulfate sulfur versus total sulfur.

Figure 6 shows NP values versus AP values. Also included are the linear expressions of the acid rock drainage criteria advocated by Price (1997). Based on this classification, all samples are designated as non-acid-generating because all samples have an NP/AP ratio > 4 .

Figure 7 shows that the paste pH increases as the NP increases, but only for samples above 4 feet depth in the stockpile. In general, NP appears to decrease with depth. A plot of paste pH versus NP/AP (Figure 8) indicates the same narrow range of alkaline paste pH values and confirms little acid-generating potential. These results are consistent with the composition of the stockpile described in Section 4.1 with high NP limestone in the upper portions and lower NP granodiorite in the lower portions.

Figure 9 can be used to make an assessment of the empirical rule of thumb that relates paste pH to pyrite sulfur content. Samples in the upper left quadrant (pyrite sulfur < 0.3 wt%, paste pH > 5.5) are considered unlikely to generate acid. This group consists of all samples except GH5-2 0-6". Despite the higher sulfur content, this sample is also considered not acid generating because of its NP/AP value of approximately 14.

SPLP and Total Metals

Total metals and SPLP results are listed in Tables 2 and 3, respectively. Total metals analysis was conducted to determine the nature of the stockpile materials. A subset of the samples was subjected to SPLP testing to determine whether metals identified by total metals analysis had the potential to leach from the stockpile.

SPLP leachate pH values were all circumneutral, and no groundwater or surface water metals standards were exceeded. Of the target constituents in SPLP leachate, only total dissolved solids (TDS) was identified as having the potential to leach above the applicable groundwater standard in one sample (GH5-1 0-2', Table 2). The leachate pH for this sample was 6.28 and a cation-anion balance accuracy check yields a 5 percent charge imbalance, indicating acceptable analytical accuracy. Because the measured, very high TDS value cannot be reproduced by summing all dissolved ions, this suggests that the TDS value may represent analytical error.

4.2.2 Soil Cover Evaluation

The materials in the Groundhog No. 5 Stockpile are moderately fine-textured, with moderate to high rock fragment contents, as shown in the table below.

Sample ID	Depth	Rock Fragments % vol	Sand %	Silt %	Clay %	Texture USDA	EC dS/m	P lb/ac-ft	NO3 lb/ac-ft	OM %
GH5-1	6-10'	53	64	16	20	SCL	0.83	<4	<4	0.19
GH5-1	12-16'	29	64	12	24	SCL	0.33	<4	<4	0.14
GH5-1	18-20'	17	68	11	21	SCL	0.44	<4	<4	0.19
GH5-1	4-8'	84	78	7	15	SL	2.24	8	4	0.67
GH5-2	0-6"	43	56	21	23	SCL	2.32	20	4	0.84
GH5-2	4-8'	49	68	15	17	SL	2.72	<4	<4	0.57
GH5-2	12-20'	51	68	12	20	SCL	2.58	<4	<4	0.86
GH5-3	0-2'	53	72	11	17	SL	1.06	4	<4	0.71

EC = Electrical Conductivity

P = Phosphorus

NO₃ = Nitrogen

OM = Organic Matter

dS/M = deciSiemens per meter

lb/ac-ft = pounds per acre-foot

USDA = U.S. Department of Agriculture

These materials are neutral to slightly alkaline (pH 7.1 to 7.8) and non-saline to slightly saline (0.3 to 2.7 deciSiemens per meter). The slightly alkaline pHs and low salinity indicate that these materials are not affected by acid formation or acidic leachates. The positive ABA data confirm that these materials lack the capacity to generate excess acidity (Section 4.2.1). The organic matter content is low (less than 1 percent), but is consistent with levels found in the surface layers of arid region soils. Similarly, the extractable nitrogen and phosphorous concentrations are low, but are not considered limiting for native and adapted reclamation species. Thus, no chemical or physical limitations are predicted in the use of these materials as reclamation substrates and additional cover material is not required to establish vegetation. The generally coarse-textured nature of the materials is considered desirable from an erosional stability perspective.

4.2.3 Results of Surface Water Drainage Mapping, Spring and Seep Survey, and Surface Water Sampling

A visual inspection of the drainage sub-basin (Figure 2) was conducted for the purpose of identifying surface water drainage patterns on and near the site, possible interaction between Groundhog No. 5 Stockpile materials and surface water, and any active seeps or springs on and/or near the site.

The drainage sub-basin is much smaller than estimated in the work plan (Golder, 2004). This was due to the presence of drainage channels excavated around the site to intercept surface water run-on and divert it around the stockpile. The extent of the drainage sub-basin and the locations of the drainage channels are shown on Figure 3. The drainage basin covers 3.5 acres, 1.7 of which are covered by the stockpile itself.

No seeps or springs were observed within the drainage sub-basin during the site investigation. There were no observed areas of high moisture, unusual evaporite deposition, or concentrations of wetland-type vegetation.

Water was flowing in the stream near the stockpile. The stream was sampled at the location shown on Figure 3, and analytical results are listed in Table 3. No exceedances of New Mexico groundwater or surface water standards were exceeded.

5. CONCLUSIONS AND RECOMMENDATIONS

All 10 waste material samples analyzed in this study classify as non-acid-generating and yield slightly alkaline paste pH values. All samples also exhibit low metals leachability and consistently circumneutral leachate pH. Surface water does not exceed water quality standards in the stream below the stockpile. Therefore, the results from the geochemical characterization suggest that the Groundhog No. 5 Stockpile does not represent a significant potential source of acidity and metals to the local watershed.

Further, no chemical or physical limitations are predicted in the use of these materials as reclamation substrates. Golder recommends direct revegetation of the regraded stockpile materials. This has the additional advantage of eliminating the need for a borrow area on the undisturbed adjacent hillside.

After the area is graded to a stable slope configuration (Engineers Inc., 2004), the following practices are recommended to revegetate the site.

Seedbed preparation: The seedbed will be scarified to a depth of 12 inches to leave a roughened surface. All scarification operations will be conducted strictly on the contour.

Seeding: Seeding will be accomplished by drill or broadcast techniques depending on the site conditions and available equipment spread.

Seed mixtures: The seed mix specified for this project is listed in the table below.

Alternative seed mixes may be substituted depending on the seasonal availability following consultation with the seed suppliers and NMED.

Mulching: Long-stem, native grass hay mulch should be applied at a rate of 2 tons per acre and stabilized by crimping. The mulch must be certified weed free and the source of origin must be specified.

Species	Common Name	Lbs/ac
Grasses		
Bouteloua gracilis	Blue Grama	0.35
Bouteloua curtipendula	Sideoats grama	1.5
Leptochloa dubia	Green Sprangletop	0.5
Sporobolus cryptandrus	Sand Dropseed	0.05
Sitanion hystrix	Bottlebrush squirreltail	1.25
Agropyron dastachyum v. rip.	Streambank wheatgrass	0.5
Shrubs		
Eurotia lanata	Winterfat	1.5
Atriplex canescens	Fourwing saltbush	1.5
Chrysothamnus nauseosus	Rubber Rabbitbush	0.1
Forbs		
Linum lewisii	Blue flax	0.15
Penstemon ambiguus	Bush penstemon	0.5
Penstemon palmeri	Palmer penstemon	0.3
Total Seed Pounds per Acre (Pure Live Seed)		8.2

Lbs/ac = pounds per acre

6. REFERENCES

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TABLES

TABLE 1											
ACID-BASE ACCOUNTING RESULTS, GROUNDHOG NO. 5 STOCKPILE MATERIALS											
Location ID	Depth of Sample	1:1 Paste pH (s.u.)	Total Sulfur	Pyritic Sulfur	Sulfate Sulfur	Unident. Sulfur	Net Neutralization Potential	NP (Pyr.-S)	AP (Pyr-S)	NP/AP Ratio (Pyr-S)	Material Classification
			(% as Sulfur)				tons CaCO3/Kton				
GH5-1	0-2'	7.96	0.52	0.1	0.33	0.09	732.7	735.82	3.13	235	Not Acid Generating
GH5-1	4'	8.16	0.17	0.17	<0.01	0.01	764.06	769.37	5.31	145	Not Acid Generating
GH5-1	6-10'	8.09	<0.01	<0.01	<0.01	<0.01	63.52	63.52	<0.3	212	Not Acid Generating
GH5-1	12-16'	7.72	<0.01	<0.01	<0.01	<0.01	16.54	16.54	<0.3	55	Not Acid Generating
GH5-1	18-20'	8.39	<0.01	<0.01	<0.01	<0.01	13.7	13.66	<0.3	46	Not Acid Generating
GH5-2	0-6"	7.25	1.2	0.77	0.34	0.09	318.7	342.74	24.06	14	Not Acid Generating
GH5-2	4-8'	7.61	0.24	0.03	0.2	0.01	450.9	451.8	0.94	481	Not Acid Generating
GH5-2	12-20'	7.69	0.35	0.25	0.09	0.01	91.7	99.47	7.81	13	Not Acid Generating
GH5-3	0-2'	7.89	0.1	0.01	0.08	0.01	715.14	715.45	0.31	2308	Not Acid Generating
GH5-3	3A	7.95	0.09	0.01	0.08	<0.01	767.87	768.18	0.31	2478	Not Acid Generating

Notes:

s.u. = standard units

tons CaCO3/Kton = tons of calcium carbonate per kiloton

NP = neutralization potential

AP = acid potential

TABLE 2
TOTAL METALS ANALYSES, GROUNDHOG NO. 5 STOCKPILE MATERIALS

Sample	Depth Interval	Al	As	Ca	Cd	Co	Cr	Cu	Fe	K	Mg	Mn	Mo	Na	Ni	Pb	Sb	Se	Zn
GH5-1	0-2'	5400	3	264000	17.2	3.1	21	491	8040	1390	7960	1930	2.1	62.4	9.3	2880	<0.76	<0.80	6630
GH5-1	4'	4490	3.4	256000	3.4	2.3	20.5	58.5	5800	1370	18400	1530	1.8	77	9.6	661	<0.76	<1.6	1020
GH5-1	6-10'	11800	2.7	23200	0.98	7.1	41.6	21.5	15900	1460	8750	1030	4.1	167	1.3	22.4	<0.76	<0.80	323
GH5-1	12-16'	13300	4.1	6810	0.76	6.3	35.1	89.5	22500	2140	6640	721	3.4	98.6	5.2	46.5	<0.76	<0.80	172
GH5-1	18-20'	10600	3.8	8280	0.41	4.2	41.6	47.8	13400	1780	4590	502	3.5	254	3.8	37.7	<0.76	<0.80	104
GH5-2	0-6"	6430	30.8	131000	21.4	4.3	33.7	312	24300	2180	3600	5040	5.6	77.1	<0.34	2050	<0.76	<0.80	6480
GH5-2	4-8"	10300	6.5	169000	2.1	4.7	56.6	15.6	16100	1640	6860	472	2.9	87.6	30.7	205	<0.76	<4.0	299
GH5-2	12-20'	9540	4.4	36400	0.87	3.8	38.6	14.6	14400	3200	5010	3220	4.1	87.4	<0.34	186	<0.76	<1.6	226
GH5-3	0-2'	5220	2.4	259000	0.57	2.4	17.7	26.5	5760	1730	9520	268	1.1	77.7	9.8	33.6	<0.76	<1.6	90.7
GH5-3	3A	5050	3.8	260000	0.54	2.1	13.6	23.7	5520	1550	9080	288	0.71	74.4	9.1	29.8	<0.76	<1.6	87.6

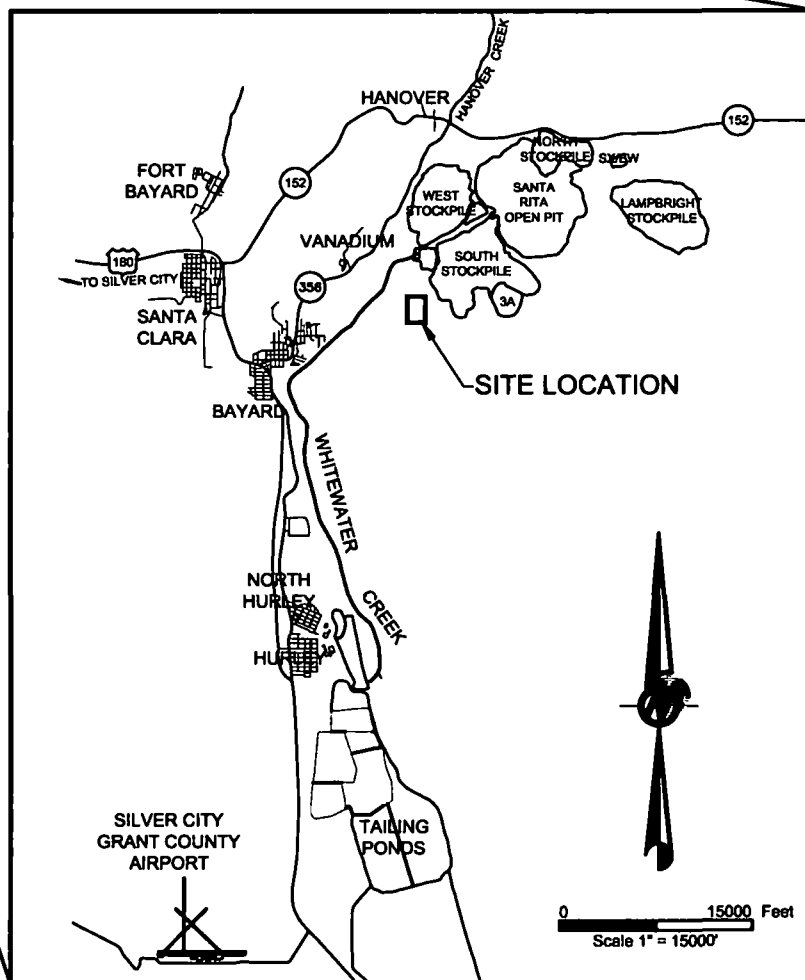
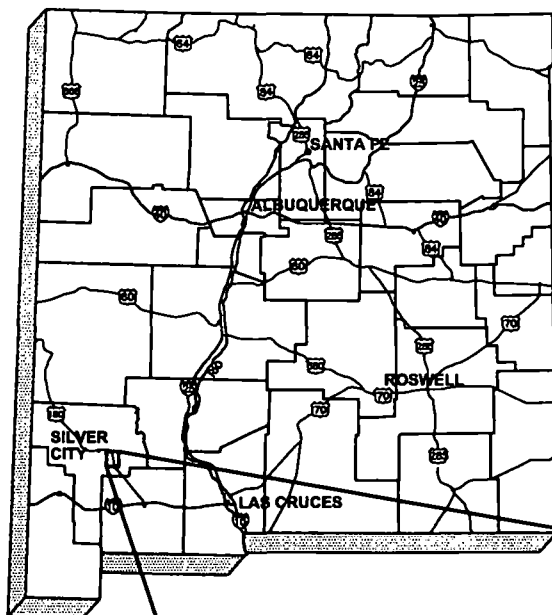
Notes

All data are in units of milligrams per kilogram (mg/kg)

TABLE 3																											
SPLP AND SURFACE WATER ANALYSES, GROUNDHOG NO. 5 STOCKPILE																											
Standard		pH	Ca	K	Mg	Na	Al	As	Cd	Co	Cr	Cu	Fe	Mn	Mo	Ni	Pb	Sb	Se	Zn	TDS	Cl	F	SO4	Alkalinity	ALK-Bicarbonate	ALK-Carbonate
NM GW Standard for Human Health		NS	NS	NS	NS	NS	NS	0.1	0.01	NS	0.05	NS	NS	NS	NS	NS	0.05	NS	0.05	NS	NS	NS	1.6	NS	NS	NS	NS
Other NM GW Standard for Domestic Water Supply		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.0	1.0	0.2	NS	NS	NS	NS	NS	NS	1000	250	NS	600	NS	NS	NS
Other NM GW Standard for Irrigation Use		NS	NS	NS	NS	NS	5.0	NS	NS	0.05	NS	NS	NS	NS	1.0	0.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NM Surface Water Standard		NS	NS	NS	NS	NS	5.0	0.1	0.01	0.1	0.1	0.1	NS	NS	1.0	0.2	0.1	NS	NS	2.0	NS	NS	NS	NS	NS	NS	NS
SPLP Sample	Depth Interval																										
GH5-1	0-2'	6.28	11.3	1.22	0.759	0.409	0.0604	<0.0006	<0.0002	<0.0005	<0.0003	<0.0004	<0.0059	<0.0006	0.0061	<0.0017	0.0013	<0.0038	<0.0008	0.00052	5060	0.209	0.112	16.3	18.3	18.3	<1.0
GH5-1	4'	6.4	8.82	1.23	0.987	0.275	0.145	<0.0006	<0.0002	0.00051	<0.0003	<0.0004	<0.0059	<0.0006	0.0052	<0.0017	0.00085	<0.0038	<0.0008	0.00034	60	0.221	0.158	9.93	21.79	21.79	<1.0
GH5-1	6-10'	6.39	6.37	1	1.18	3.17	0.0947	0.0065	<0.0002	<0.0005	<0.0003	<0.0004	0.0068	0.0011	0.0031	<0.0017	0.0011	<0.0038	<0.0008	0.00066	55	<0.2	<0.1	3.67	29.4	29.4	<1.0
GH5-1	12-16'	6.52	5.5	0.492	1.27	15.6	0.407	0.0016	<0.0002	<0.0005	0.00075	0.0013	0.247	0.0061	0.0035	<0.0017	0.002	<0.0038	<0.0008	0.0052	99	<0.2	0.286	7.74	44.4	44.4	<1.0
GH5-1	18-20'	6.32	6.57	0.691	1.2	4.07	1.28	0.0036	<0.0002	0.0006	0.00042	0.0052	0.771	0.0247	0.0029	<0.0017	0.0037	<0.0038	<0.0008	0.0095	69	0.777	0.386	4.52	25	25	<1.0
GH5-2	0-6"	6.21	128	2	1.51	0.876	<0.0121	<0.0006	0.00038	<0.0005	<0.0003	<0.0004	0.0065	0.0462	0.0076	<0.0017	0.0012	<0.0038	<0.0008	0.0016	537	<0.2	0.289	315	30.3	30.3	<1.0
GH5-2	4-8"	6.31	99	2.36	4.69	0.445	0.0848	0.00086	<0.0002	0.00051	<0.0003	<0.0004	0.0068	0.0065	0.0101	<0.0017	0.0011	<0.0038	<0.0008	<0.0003	445	<0.2	0.408	268	12.2	12.2	<1.0
GH5-2	12-20'	6.24	21.8	2.95	2.26	1.02	0.0983	0.0031	0.0002	<0.0005	<0.0003	<0.0004	<0.0059	0.0086	0.012	<0.0017	0.00093	<0.0038	<0.0008	<0.0003	117	<0.2	0.308	55.8	15.6	15.6	<1.0
GH5-3	0-2'	6.54	7.95	1.2	0.908	0.303	0.155	0.0008	0.00022	<0.0005	<0.0003	<0.0004	<0.0059	0.00084	0.0024	<0.0017	0.0011	0.0048	<0.0008	<0.0003	41	0.214	<0.1	8.38	19.3	19.3	<1.0
GH5-3	3A	6.39	7.25	1.26	0.838	0.329	0.196	<0.0006	<0.0002	0.00057	0.00032	<0.0004	<0.0059	<0.0006	0.0022	<0.0017	0.00093	<0.0038	<0.0008	<0.0003	55	0.235	<0.1	5.27	20.2	20.2	<1.0
Sample																											
GH5 @ Lucky Bill	NA	6.83	55.3	5	15	36	<0.0121	0.00068	0.0006	<0.0005	<0.0003	0.0059	0.023	0.0112	0.0092	0.0018	0.0011	<0.0038	<0.0008	0.107	391	8.72	0.245	122	144	144	<1.0

Notes
All standards and data are in units of milligrams per liter (mg/L)
NS = no standard exists for this constituent
Exceeds groundwater standards only
SPLP = Synthetic Precipitation Leachate Procedure

FIGURES



K:\1995 Projects\953-1072-030\9531072C006.dwg



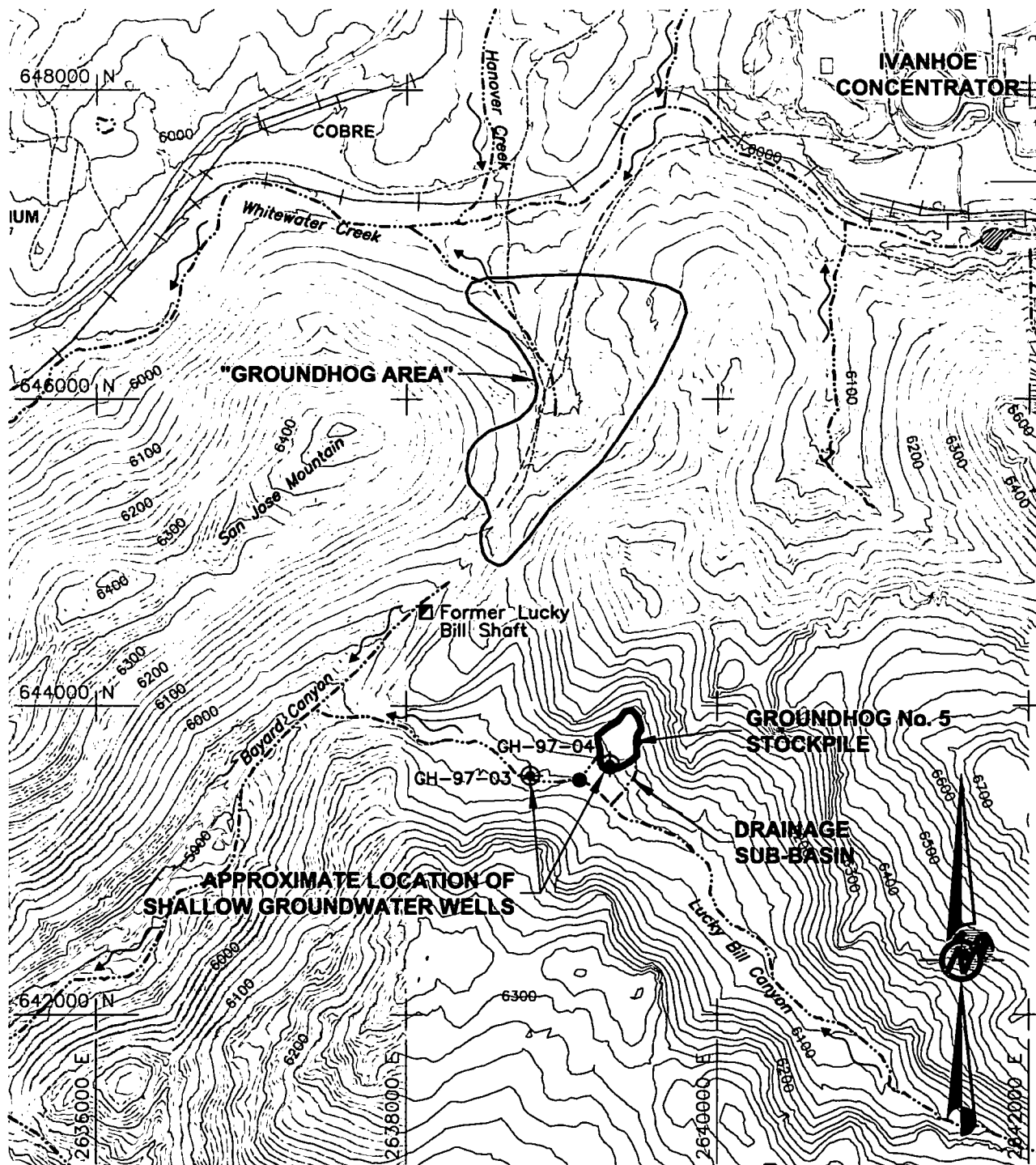
Tucson, Arizona

PROJECT NO.
953-1072-030

DATE
02/10/05

REVISION

FIGURE 1
SITE INVESTIGATION AREA



LEGEND

- WATERCOURSE
- DIRECTION OF FLOW
- SHALLOW GROUNDWATER WELL
- APPROXIMATE SURFACE WATER SAMPLING LOCATION

1000 0 1000
1" to 1000' FEET
CONTOUR INTERVAL = 25 FEET



Tucson, Arizona

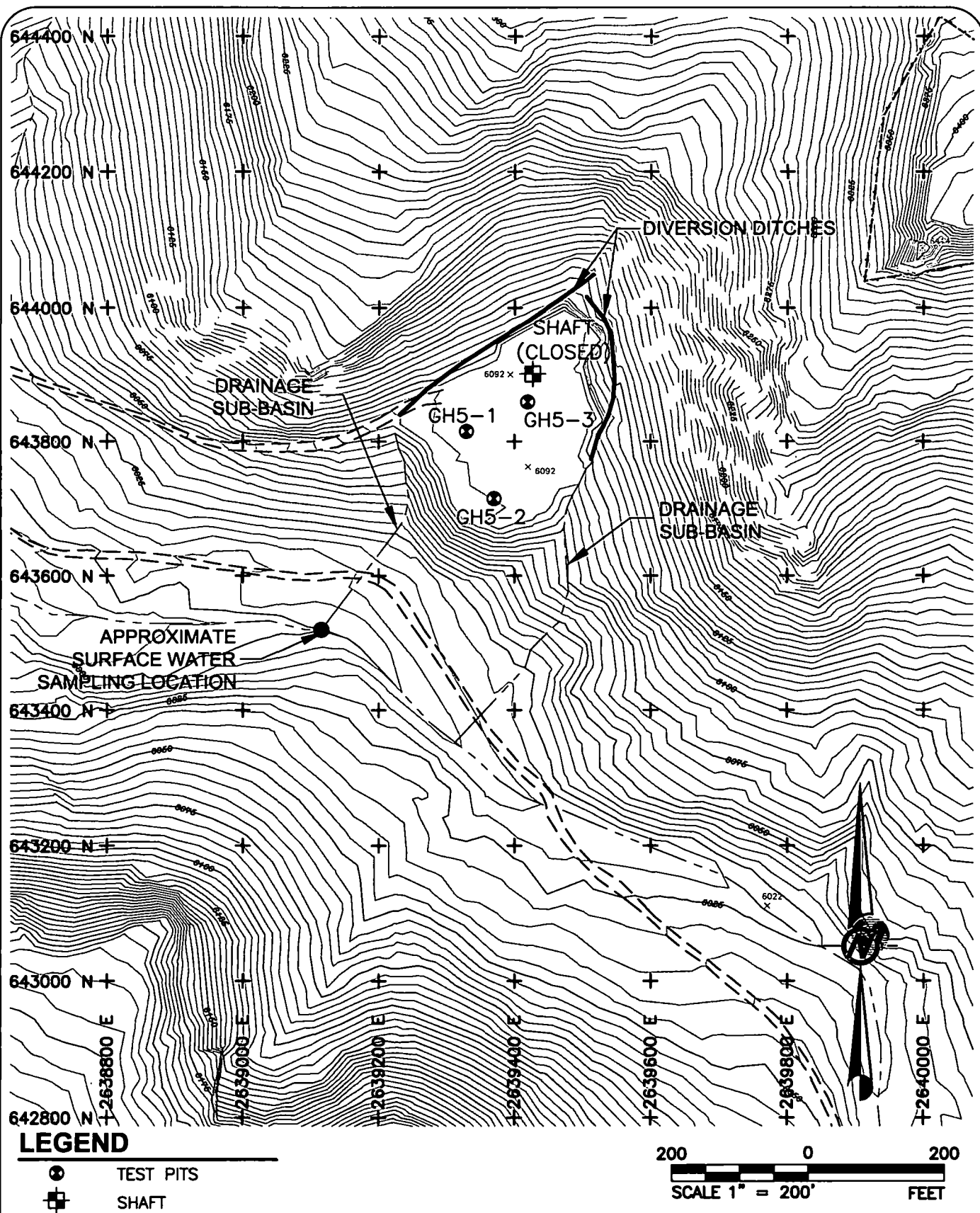
PROJECT NO.
953-1072-030

DATE
02/10/05

REVISION

FIGURE 2
GROUNDHOG No. 5 STOCKPILE LOCATION

K:\1995 Projects\953-1072-030\9531072C007.dwg



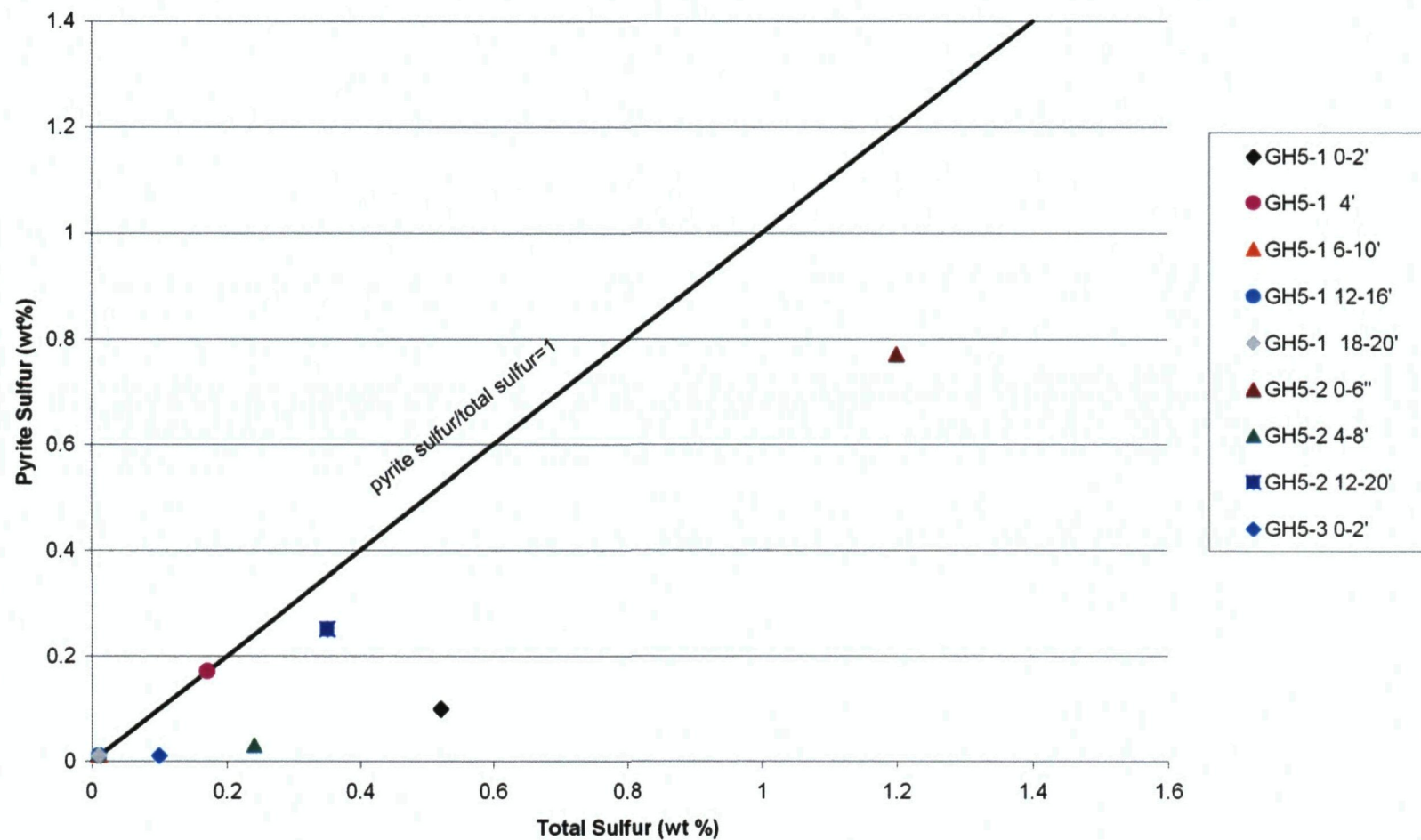
Tucson, Arizona

PROJECT NO.
953-1072-030

DATE
02/10/05

REVISION

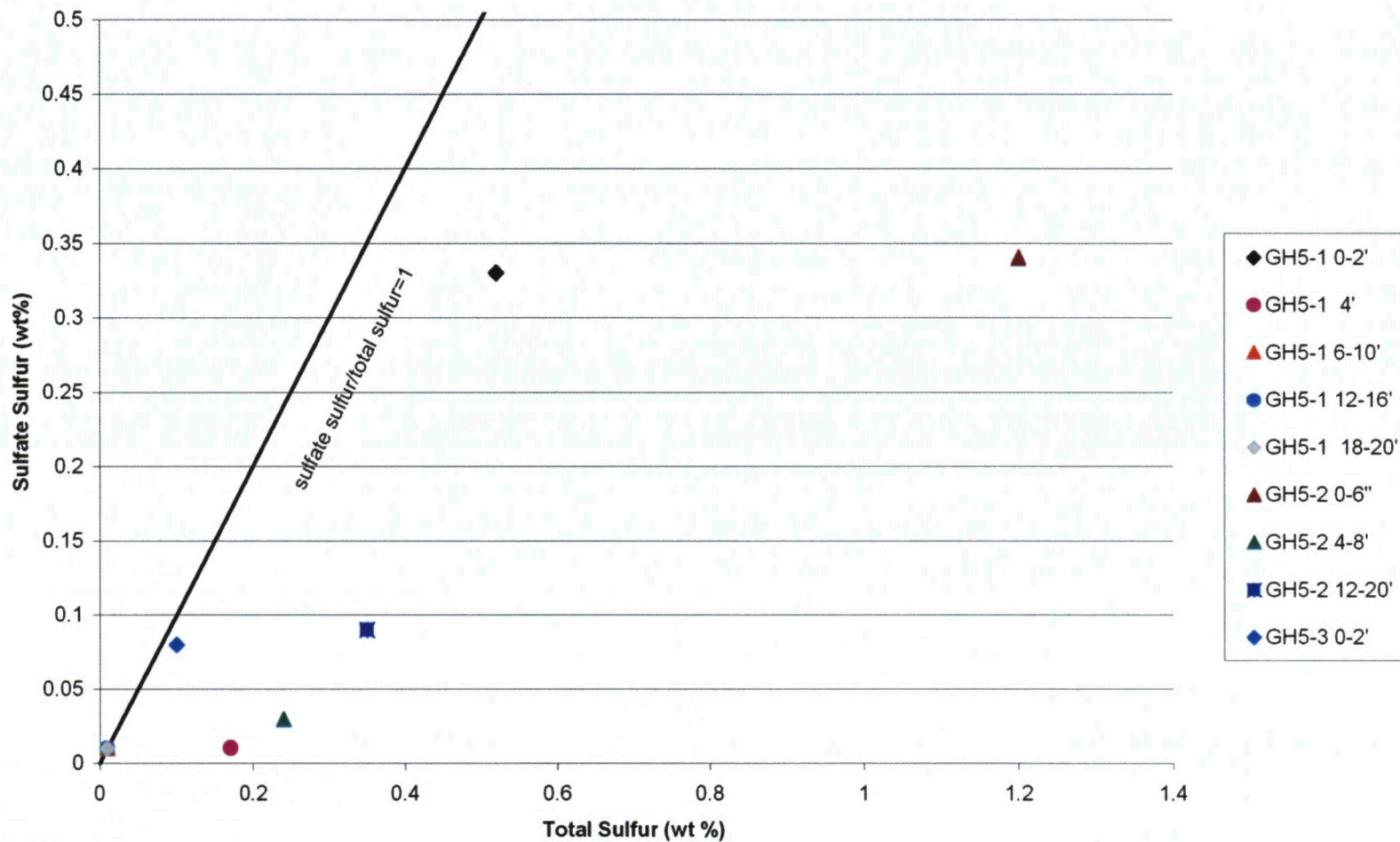
FIGURE 3
TEST PIT LOCATIONS



Tucson, Arizona

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953-1072-030DATE
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FIGURE 4
PYRITIC SULFUR VERSUS TOTAL SULFUR



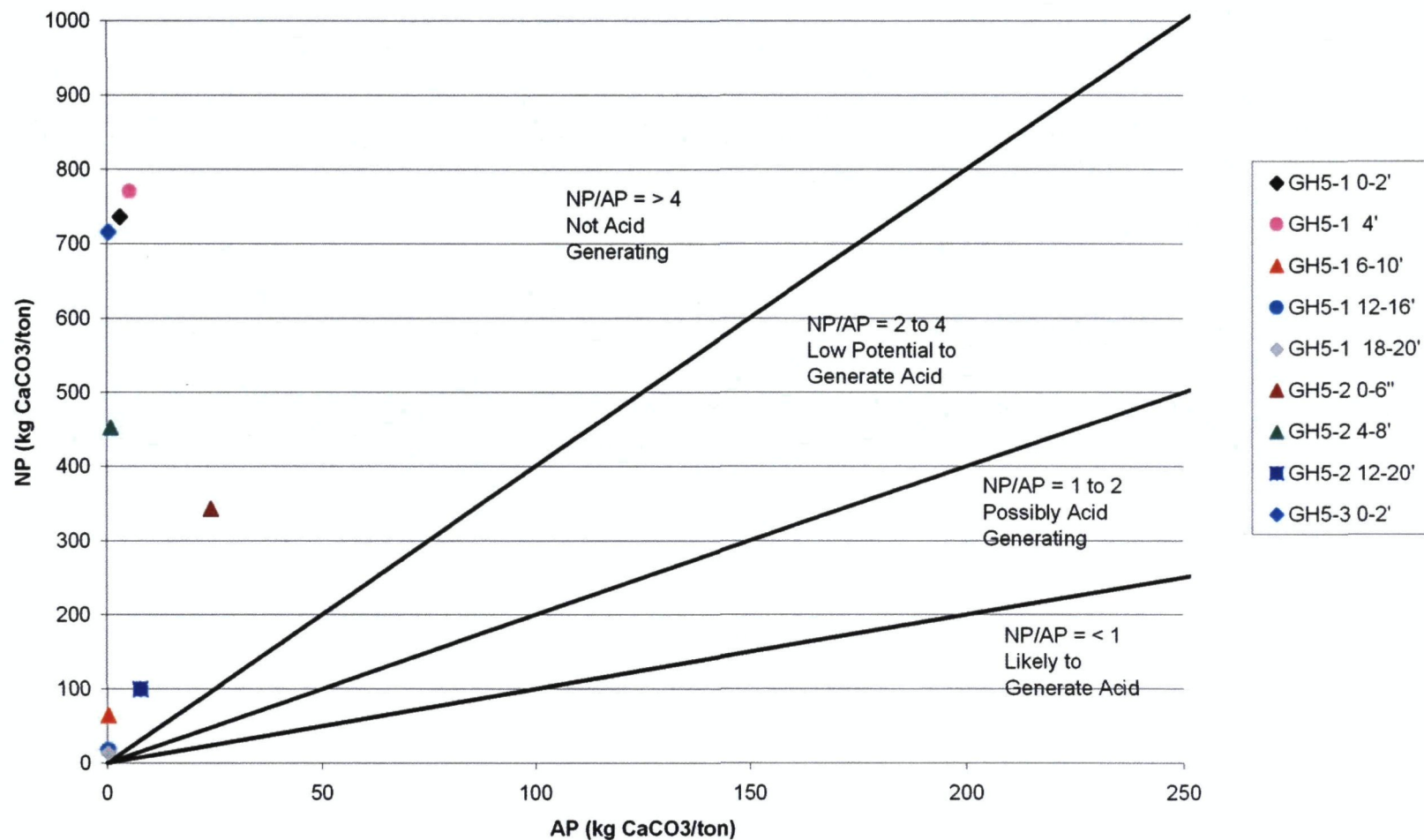
Tucson, Arizona

PROJECT NO.
953-1072-030

DATE
02/14/05

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FIGURE 5
SULFATE SULFUR VERSUS TOTAL SULFUR



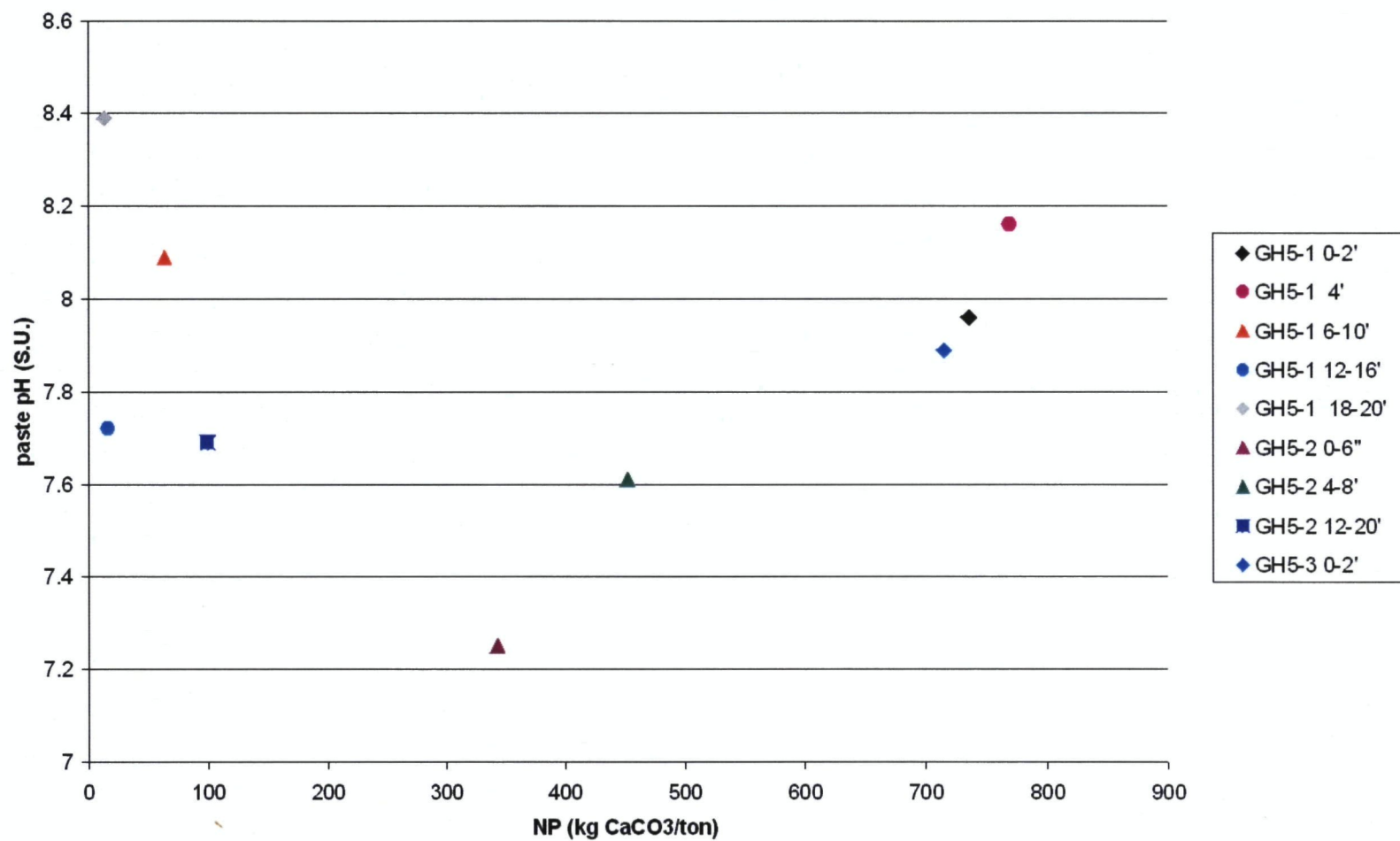
Tucson, Arizona

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953-1072-030

DATE
02/14/05

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FIGURE 6
NEUTRALIZATION POTENTIAL VERSUS ACID POTENTIAL

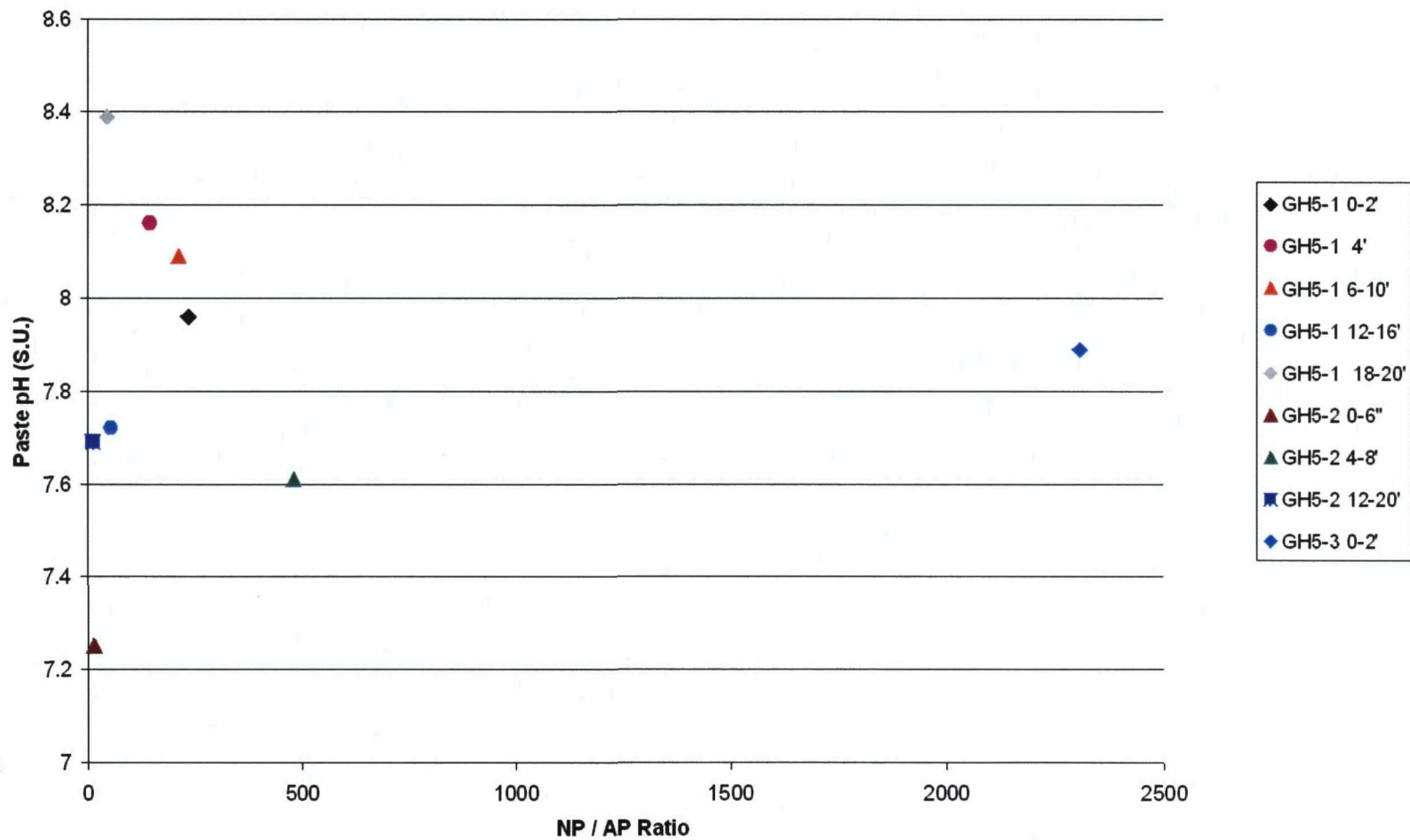


Tucson, Arizona

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953-1072-030DATE
02/14/05REVISION
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FIGURE 7
PASTE pH VERSUS NP

K:\1995 Projects\953-1072-030\95310720008



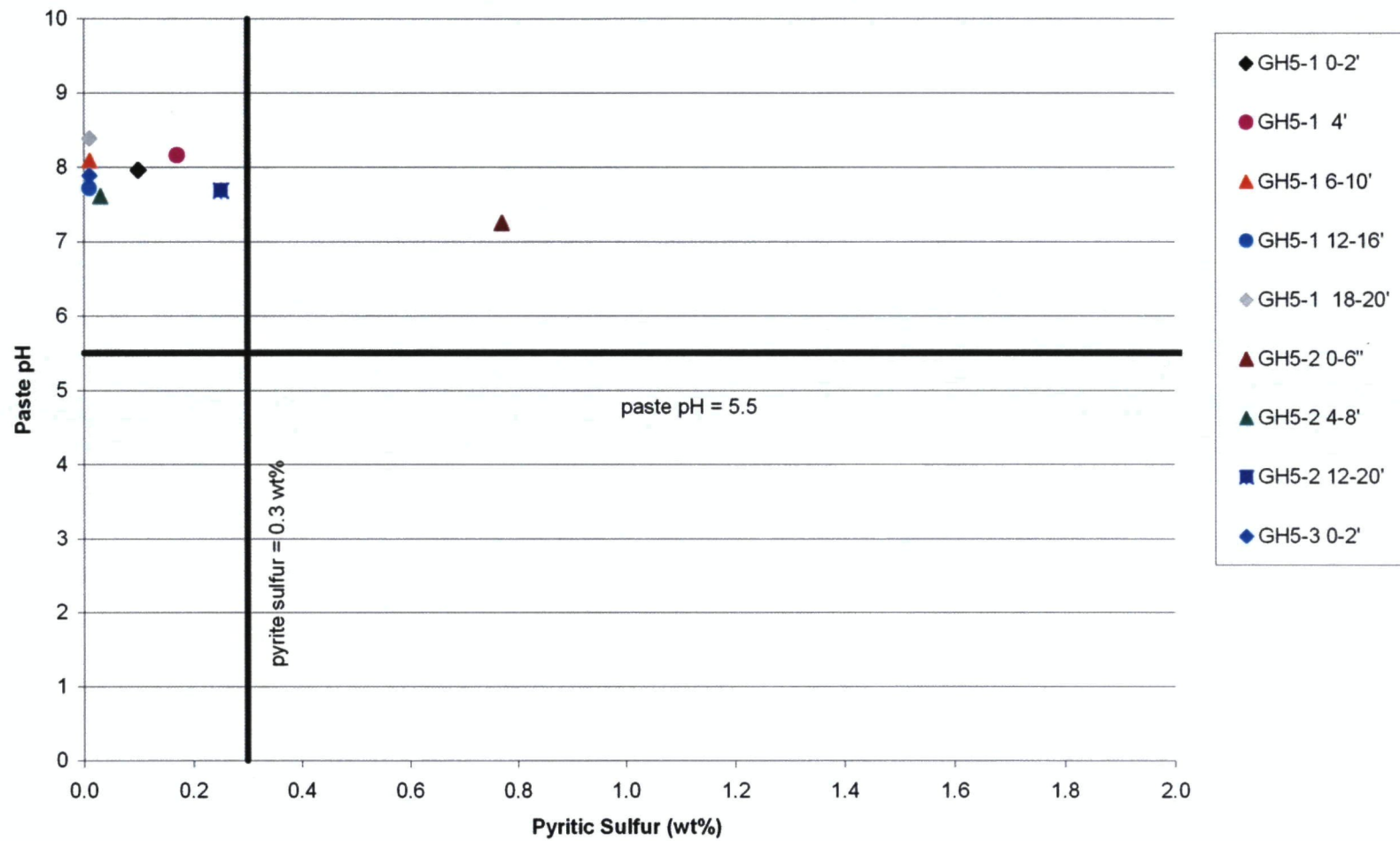
Tucson, Arizona

PROJECT NO.
953-1072-030

DATE
02/14/05

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FIGURE 8
PASTE pH VERSUS THE NP/AP RATIO



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953-1072-030

DATE
02/14/05

REVISION
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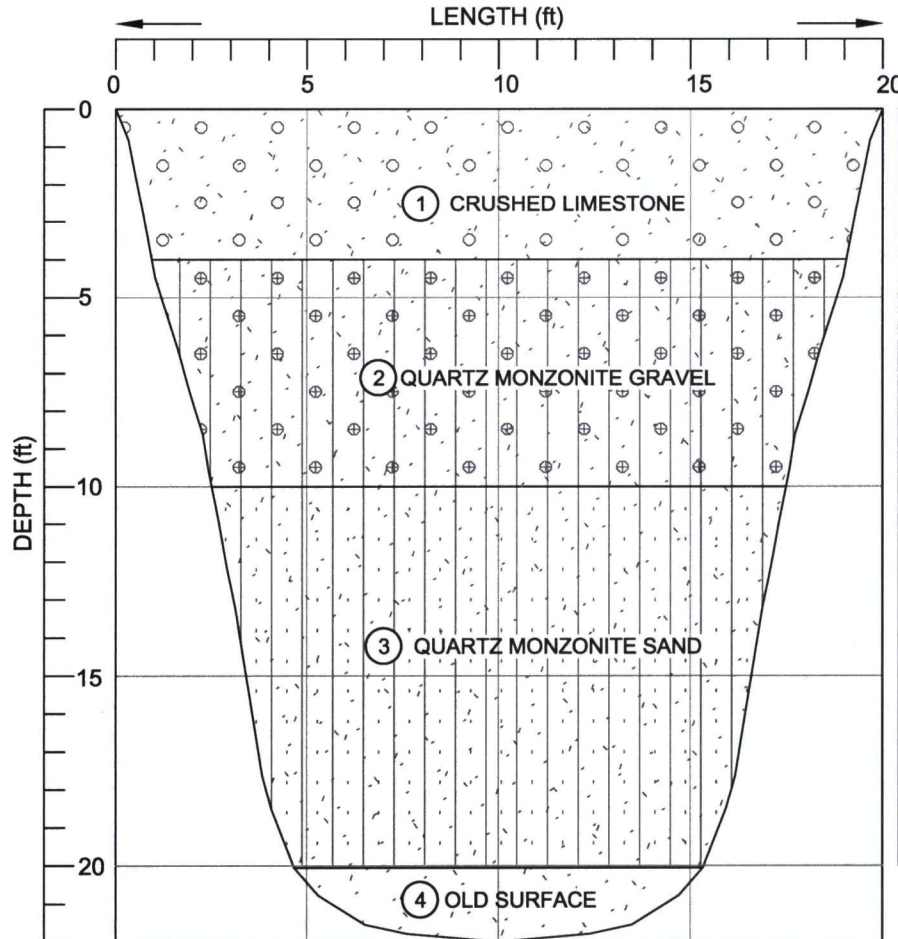
FIGURE 9
PASTE pH VERSUS PYRITIC SULFUR

APPENDIX A

TEST PIT LOGS

FIELD TEST PIT LOG

TEMP 40 °F WEATHER SUNNY TEST PIT GH5-1
 EQUIPMENT PC22 OLC TRACKHOE ENGINEER JEN PEPE OPERATOR EDDIE JOHNSON
 ELEVATION _____ CONTRACTOR HAMILTON DATE 11/10/04
 LOCATION WEST CENTER OF STOCKPILE TOP DATUM _____ JOB 953-1072-030



LITHOLOGIC DESCRIPTIONS AND EXCAVATION NOTES

1. (0'-4') *Poorly graded gravel with sand, GW - 20% Oversize (>3" up to 6"), 75% angular gravel, 20% angular sand, 5% fines; black, moist, non-plastic; reacts strongly with HCl, occasional iron staining in upper 1'. Lithics: crushed limestone. (STOCKPILE MATERIAL)*
2. (4'-10') *Well graded gravel with silt and sand, GW-GM - 20% Oversize (>3" up to 8"), 50% angular gravel, 40% angular to subangular sand, 10% fines; brown, wet, low plasticity; reacts weakly with HCl. Feldspars weathering to clays. Lithics: altered quartz monzonite and diorite with some limestone (>4"); At 10', material is moist, grayish brown, and clasts are subrounded. (STOCKPILE MATERIAL)*
3. (10'-20') *Well graded sand with silt and gravel, SW-SM - 10% Oversize (>3" up to 12"), 25% subangular gravel, 65% subangular sand, 10% fines; brown, wet, low plasticity; no reaction with HCl except on limestone cobbles. Lithics: weathered quartz monzonite, occasional dolomite and limestone chips. (STOCKPILE MATERIAL)*
4. (20'-22') *Well graded sand with gravel, SW - 15% Oversize (>3"), 20% subangular gravel, 75% subangular sand, 5% fines; brown, moist, non-plastic; reacts weakly with HCl. Lithics: pink tuff, some monzonite, rare quartzite. (COLLUVIUM OF ORIGINAL SURFACE)*



SAMPLES

NO.	DESCRIPTION
GH5-1 0'-2'	STOCKPILE-LIMESTONE
GH5-1 4'	STOCKPILE-QUARTZ MONZONITE GRAVEL
GH5-1 6'-10'	STOCKPILE-QUARTZ MONZONITE SAND
GH5-1 12'-16'	STOCKPILE-QUARTZ MONZONITE SAND
GH5-1 20'-22'	OLD SURFACE

SPECIAL NOTES:

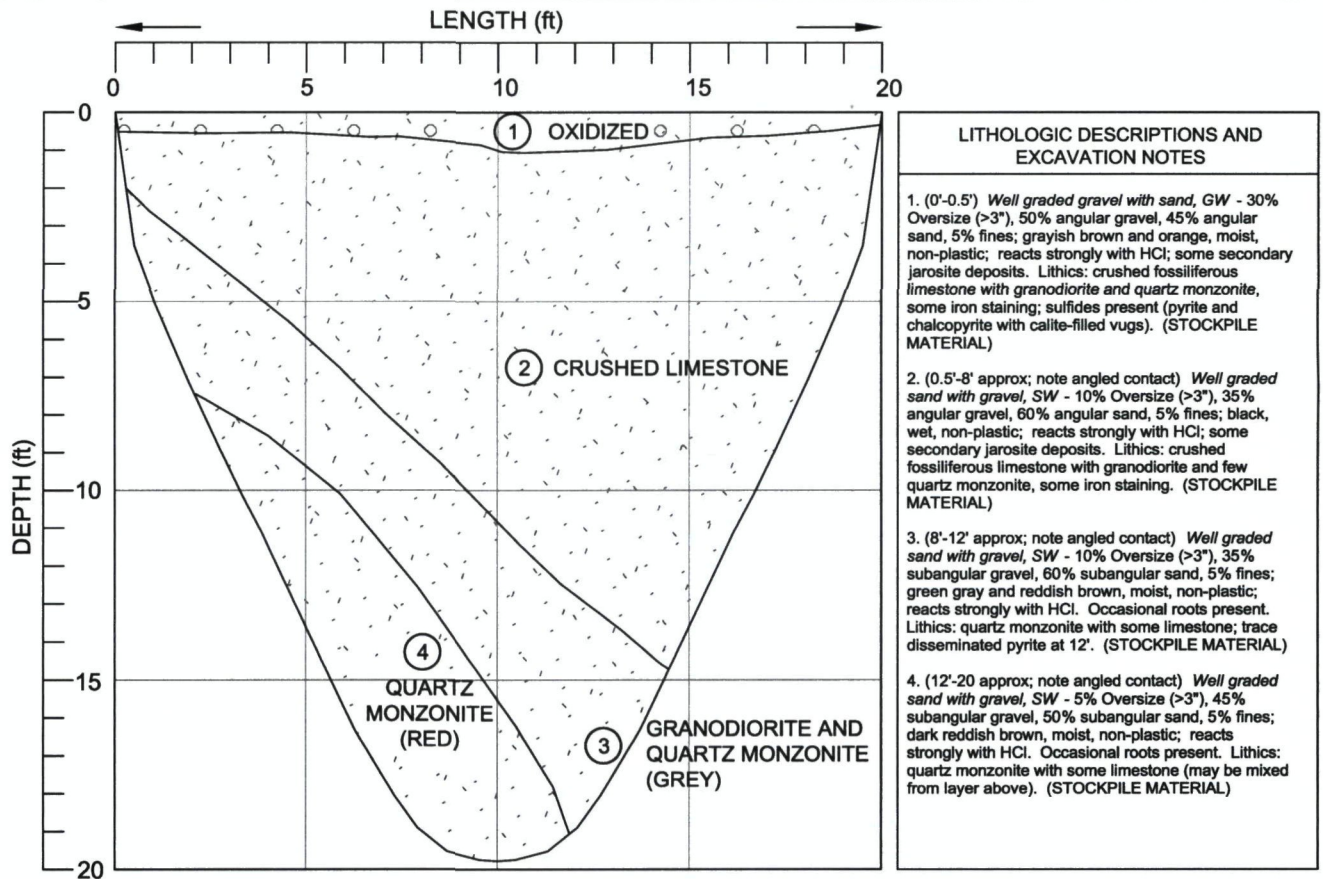
DRY HOLE

DID NOT REACH UNDERLYING MATERIALS BELOW OLD SURFACE

SAMPLE @ 18' WAS MIXED STOCKPILE/OLD SURFACE. SAMPLE WAS DISCARDED

FIELD TEST PIT LOG

TEST PIT GH5-2
 TEMP 40 °F WEATHER SUNNY ENGINEER JEN PEPE OPERATOR EDDIE JOHNSON
 EQUIPMENT PC22 OLC TRACKHOE CONTRACTOR HAMILTON DATE 11/10/04
 ELEVATION _____ DATUM _____ JOB 953-1072-030
 LOCATION EAST CENTER OF STOCKPILE TOP



SAMPLES	
NO.	DESCRIPTION
GH5-2 0"-6"	OXIDIZED SURFACE
GH5-2 4'-8'	CRUSHED LIMESTONE
GH5-2 12'-20'	QUARTZ MONZONITE

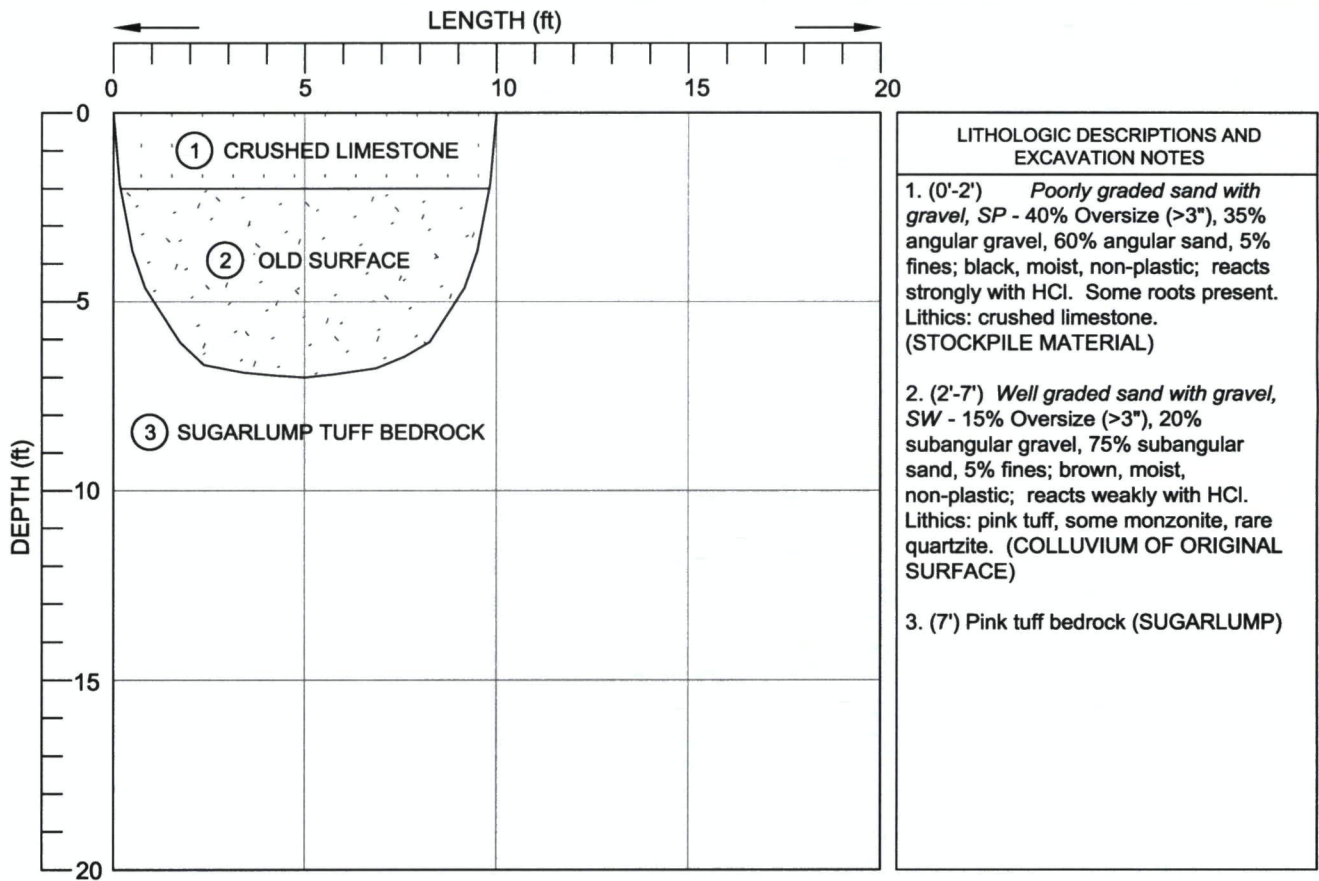
SPECIAL NOTES:

DRY HOLE

DID NOT REACH UNDERLYING MATERIALS
BELOW OLD SURFACE

FIELD TEST PIT LOG

TEMP 40 °F WEATHER SUNNY TEST PIT GH5-3
 EQUIPMENT PC22 OLC TRACKHOE ENGINEER JEN PEPE OPERATOR EDDIE JOHNSON
 ELEVATION _____ CONTRACTOR HAMILTON DATE 11/10/04
 LOCATION NORTH TOP OF STOCKPILE NEAR OLD CUT/FILL CONTACT JOB 953-1072-030



SAMPLES	
NO.	DESCRIPTION
GH5-3 0-2'	STOCKPILE-LIMESTONE
GH5-3 -3A	BFD

SPECIAL NOTES:

DRY HOLE

MET REFUSAL @ 7'

APPENDIX B

LABORATORY DATASHEETS

APPENDIX B-1

SVL ANALYTICAL DATASHEETS

PHELPS DODGE – CHINO

ATTN: Pam Pinson

**Project: LUCKY BILL CANYON
GROUNDHOG**

STOCKPILE No. 5

SVL/SDG: 114590

PHELPS DODGE - CHINO MINE
PROJECT: LUCKY BILL CANYON

SVL/SDG: 114590

	<u>DOCUMENT</u>	<u>PAGE NUMBERS</u>	
	Cover Page	1	1
SDG: 114590	Data Report Forms	2	28
	Raw Data	29	73
	Preparation Logs	74	75
	*Air Bill	76	76
	*Chain of Custody	77	78
	Sample Log-In	79	79
	*Cover Sheet	80	80
	*Cooler Receipt Forms	81	81
	Run Logs	82	86
	Confirmation	87	88
Sieve/pH/TOX	Data Report Forms	89	91
	Raw Data	92	140



2

NARRATIVE

PHELPS DODGE – CHINO MINE

**Project: LUCKY BILL CANYON
GROUNDHOG STOCKPILE NO. 5**

SVL/SDG: 114590

Sample was received for metals and non-metals.

Arsenic and selenium are flagged with an "N" on Forms 1 and 5A.

"N" flag represents the spike recovery is out of the control limits of 75-125% and the spike add is greater than or equal to $\frac{1}{4}$ of the sample result.

Calcium, potassium and sodium on Forms 1 and 9 are flagged with an "E".

"E" flag represents the percent difference of the serial dilution is greater than 10% and the original sample concentration (reported on Form 1) is greater than 50X the IDL reported on Form 10.

Sample for selenium is flagged with a W (Form 1).

"W" flag represents the post digestion spike for Furnace AA analysis is out of the control limits of 85-115%, while sample absorbance is less than 50% of spike absorbance.

(certificate no.: AZ0538)

CLIENT SAMPLE NO.

W427906

[illegible]

Comments:

CLIENT ID: GH#5 @LUCKY BILL

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH#5@LUCKY BILL
Sample Collected: 11/10/04 15:00
Sample Receipt : 11/12/04
Date of Report : 12/22/04

SVL JOB: 114590
SAMPLE: 427905
TOT/DIS

Matrix: WATER

Determination	Result	Units	Dilution	Method	Analyzed
T ALKALINITY	144	mg CaCO3/L		2320B	11/18/04
T CO3, CaCO3	<1.0	mg CaCO3/L		2320B	11/18/04
T HCO3, CaCO3	144	mg CaCO3/L		2320B	11/18/04
T pH	6.83			150.1	11/18/04
T TDS	391	mg/L		160.1	11/17/04
T Chloride	8.72	mg/L		300.0	11/23/00
T Fluoride	0.25	mg/L		300.0	11/23/00
T Sulfate, SO4	122	mg/L	10	300.0	11/23/00

Filtered fraction: 427906

SAMPLE ID TAKEN FROM LABEL

Reviewed By: Date 12/22/04
12/22/04 10:10

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

Quality Control Report
Part I Prep Blank and Laboratory Control Sample

Client :Phelps Dodge - Chino Mine

SVL JOB No: 114590

Analyte	Method	Matrix	Units	Prep Blank	True—LCS—Found		LCS %R	Analysis Date
Chloride	300.0	WATER	mg/L	<0.20	5.00	4.76	95.2	11/23/00
Fluoride	300.0	WATER	mg/L	<0.10	2.50	2.41	96.4	11/23/00
Sulfate, SO4	300.0	WATER	mg/L	<0.30	10.0	9.80	98.0	11/23/00
ALKALINITY	2320B	WATER	mg/L	<1.0	90.0	91.7	101.9	11/18/04
pH	150.1	WATER		5.89	5.40	5.40	100.0	11/18/04
TDS	160.1	WATER	mg/L	<10	362	414	114.4	11/17/04

LEGEND:

LCS = Laboratory Control Sample

LCS %R = LCS Percent Recovery

N/A = Not Applicable

SVL ANALYTICAL, INC.

Quality Control Report
Part II Duplicate and Spike Analysis

91

Client :Phelps Dodge - Chino Mine

SVL JOB No: 114590

Test Method	Mtx	QC SAMPLE ID		Duplicate or Found	MSD RPD%	Matrix Spike			Analysis Date
		Units	Result			Result	SPK ADD	%R	
Cl	300.0 W	1 mg/L	8.72	8.81	1.0	17.7	10.0	89.8	11/23/00
F	300.0 W	1 mg/L	0.25	0.23	8.3	2.22	2.00	98.5	11/23/00
SO4	300.0 W	1 mg/L	122	124	1.6	174	50.0	104.0	11/23/00
ALK	2320B W	1 mg/L	144	143	0.7	N/A	N/A	N/A	11/18/04
CO3	2320B W	1 mg/L	<1.0	<1.0	UDL	N/A	N/A	N/A	11/18/04
HCO3	2320B W	1 mg/L	144	143	0.7	N/A	N/A	N/A	11/18/04
pH	150.1 W	1	6.83	6.66	2.5	N/A	N/A	N/A	11/18/04
TDS	160.1 W	1 mg/L	391	375	4.2	N/A	N/A	N/A	11/17/04

LEGEND:

RPD% = $(|SAM - DUP| / ((SAM + DUP)/2)) * 100$ UDL = Both SAM & DUP not detected. *Result or *Found: Interference required dilution.RPD% = $(|SPK - MSD| / ((SPK + MSD)/2)) * 100$ M in Duplicate/MSD column indicates MSD.

SPIKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added

QC limits for MS recoveries apply only if the spike is at least 1/4 the concentration of the analyte in the sample.

Control limits for the RPD apply only if the concentration of the analyte in the sample is at least five times the reporting limit.

QC Sample 1: SVL SAM No.: 427905 Client Sample ID: GH#5@LUCKY BILL ^T

114590

Chain of Custody Record Cooler Temp 14.8°

COC No. PamPinson11-11-04

Page 1 of 1

Project Name		Project Manager		As per Golder's (Jen Pepe's) Instructions																	Analytical Parameters									
Lucky Bill Canyon-Groundhog Stockpile No. 5		Pam Pinson																			Chino Mines Company									
Project Location: Lucky Bill Canyon																					ELWD.									
Sampler(s):																					P.O. Box 7									
																					Hurley, N.M. 88043									
Sample Date	Time	Type	Sample Identification (Field ID)	Matrix	No. of Containers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Chain of Custody Seal#				
#####	9:10	x	GH5-1 0-2'	rock soil/chip	1	x																								
#####	9:50	x	GH5-1 4'	rock soil/chip	1	x																								
#####	11:00		GH5-1 6-10'	rock soil/chip	1	x																								
#####	11:00		GH5-1 12-16'	rock soil/chip	1	x																								
#####	11:00		GH5-1 18-20'	rock soil/chip	1	x																								
#####	15:00		Water unfiltered	Water	500 ml		x																							
#####	15:00		Water w/HNO	Water	500 ml		x																							

* Sample bottle
Roads - GH5
@ Lucky Bill
11/10/04 1500
KLS 11-12-04

* Sample bottle
Roads - GH5
@ Lucky Bill
11/10/04 1500
KLS 11-12-04

Signatures		Date & Time	Shipping Details		Special Instructions
Relinquished by:	<i>Pam Pinson</i>	11/11/04 2:30	Method of Shipment:	UPS RED	Per Jen Pepe: Run diss. Cr since HNO3 sample is filtered. gc 11/17/04
Received by:	<i>Kelli Seery</i>	11-12-04 3:20	Airbill No.		
Relinquished by:			Lab Addresses: ATTN: Chris Myer		
Received for Laboratory by:			SVL One Government Gulch Kellogg, ID 83837-0929	Phone: 208-784-1258 Fax: 208-783-0891	

SVL ANALYTICAL, INC.
One Government Gulch - Kellogg, ID 83837-0929

Page 1 of 1

CLIENT: Pam Pinson
Phelps Dodge - Chino Mine
PO Box 7

SAMPLE RECEIPT CONFIRMATION

SVL JOB No: 114590
Received: 11/12/04
Expected Due date: 11/30/04

Hurley NM 88043
FAX: (505)537-8012

114590

SVL#	M	ClientID	Sampled	Time	By	Received	Sample Comments
427905*	W	GH#5@LUCKY BILL ^T	11/10/04	15:00		11/12/04	SAMPLE ID TAKEN FROM LABEL
427906*	W	GH#5@LUCKY BILL ^D	11/10/04	15:00		11/12/04	

*We track Total (^T), Tot. Rec. (^R), Pot. Diss. (^P) and Dissolved (^D) fractions separately. Field samples may appear twice.

ADDITIONAL COMMENTS FOR JOB: Sample Cooler temp: 14°C.

- [X] These samples will be DISPOSED 30 days after job completion.
[] These samples will be ARCHIVED 30 days, then you will receive a letter requesting disposal options.

Please contact Ben Martin (208-784-1258) if you have questions regarding the receipt of these samples. 11/17/04 11:05

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PHELPS DODGE – CHINO

ATTN: Pam Pinson

**Project: LUCKY BILL CANYON
GROUNDHOG**

STOCKPILE No. 5

SVL/SDG: 114620

PHELPS DODGE - CHINO MINE
PROJECT: LUCKY BILL CANYON

SVL/SDG: 114620

	<u>DOCUMENT</u>	<u>PAGE NUMBERS</u>	
	Cover Page	1	1
SDG: 114620	Data Report Forms	2	46
	Raw Data	47	121
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NARRATIVE

PHELPS DODGE – CHINO MINE

***Project: LUCKY BILL CANYON
GROUNDHOG STOCKPILE NO. 5***

SVL/SDG: 114620

Samples were received for SPLP extraction; metals and non-metals analyzed.

Note: The metals are reported as ug/L.

Samples GH%-2 0-6" and GH5-2 4-8" for selenium are flagged with a W (Form 1).

"W" flag represents the post digestion spike for Furnace AA analysis is out of the control limits of 85-115%, while sample absorbance is less than 50% of spike absorbance.

(certificate no.: AZ0538)

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: SVL_ANALYTICAL_INC. _____ Contract: _____
 Lab Code: SILVER Case No.: _____ SAS No.: _____ SDG No.: 114620____
 SOW No.: ILM04

EPA SAMPLE NO.	Lab Sample ID
E418164	E428164
E418165	E428165
E418166	E428166
E418167	E428167
E418168	E428168
E418169	E428169
E418170	E428170
E418171	E428171
E418172	E428172
E418173	E428173
E418165S	E428165S
E418165D	E428165D

Were ICP interelement corrections applied ? Yes/No YES
 Were ICP background corrections applied ? Yes/No YES
 If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

PROJECT: LUCKY BILL CANYON-GROUNDHOG STOCKPILE_NO.5
 LUCKY BILL CANYON
 CLIENT IDENTIFICATION INDICATED IN COMMENT FIELD OF FORMS 1 AND 5A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Melba Bencich Name: MELBA BENCICH

Date: DECEMBER 22, 2004 Title: DOCUMENT CONTROL OFFICER

Kirby Gray
 KIRBY GRAY

CLIENT SAMPLE NO.

E418167

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Texture: _____
Artifacts: _____

CLIENT ID: GH5-1_12-16'
SPLP EXTRACTION

CLIENT SAMPLE NO.

Lab Name: SVL ANALYTICAL INC. Contract: _____
Lab Code: SILVER Case No: _____ SAS No: _____ SDG No: 114620
Matrix (soil/water): WATER Lab Sample ID: E428169
Level (low/med): LOW Date Received: 11/12/04
% Solids: 0.0

[illegible]

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

CLIENT ID: GH5-2 0-6"

SPLP EXTRACTION

CLIENT SAMPLE NO.

E418170

Lab Name: SVL ANALYTICAL INC. _____
 Lab Code: SILVER Case No: _____
 Matrix (soil/water): WATER
 Level (low/med): LOW
 % Solids: 0.0

Contract: _____
SAS No: _____ SDG No: 114620
Lab Sample ID: E428170
Date Received: 11/12/04

Concentration Units (ug/L or mg/kg dry weight): UG/L_

[illegible]

```
Color Before:  COLORLESS
Color After:   COLORLESS
```

Clarity Before: CLEAR
Clarity After: CLEAR

Texture: _____
Artifacts: _____

Comments:

CLIENT ID: GH5-2_4-8"
SPLP EXTRACTION

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE NO.

E418171

Lab Name: SVL ANALYTICAL INC.

Contract:

Lab Code: SILVER

Case No:

SAS No:

SDG No: 114620

Matrix (soil/water): WATER

Lab Sample ID: E428171

Level (low/med):

LOW

Date Received: 11/12/04

% Solids:

$$0.\overline{0}$$

Concentration Units (ug/L or mg/kg dry weight): UG/L

[illegible]

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts: _____

Comments:

CLIENT ID: GH5-2 12-20'

SPLP EXTRACTION

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine

PROJECT: G04880

CLIENT SAMPLE ID: GH5-1 0-2'

Sample Collected: 11/10/04 9:10

Sample Receipt : 11/12/04

Date of Report : 12/22/04

SVL JOB: 114620

SAMPLE: 428164

Matrix: ESOIL

Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	18.3	mg CaCO3/L		2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L		2320B	12/06/04
HCO3, CaCO3	18.3	mg CaCO3/L		2320B	12/06/04
pH	6.28			150.1	12/06/04
TDS	5060	mg/L Ext		160.1	12/03/04
Chloride	0.21	mg/L Ext		300.0	12/07/04
Fluoride	0.11	mg/L Ext		300.0	12/07/04
Sulfate, SO4	16.3	mg/L Ext		300.0	12/07/04

Reviewed By: *Terly Gray*Date 12/22/04
12/22/04 14:50

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine

SVL JOB: 114620

PROJECT: G04880

SAMPLE: 428165

CLIENT SAMPLE ID: GH5-1 4'

Sample Collected: 11/10/04 9:50

Sample Receipt : 11/12/04

Matrix: ESOIL

Date of Report : 12/22/04

Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	21.8	mg CaCO ₃ /L		2320B	12/06/04
CO ₃ , CaCO ₃	<1.0	mg CaCO ₃ /L		2320B	12/06/04
HCO ₃ , CaCO ₃	21.8	mg CaCO ₃ /L		2320B	12/06/04
pH	6.40			150.1	12/06/04
TDS	60	mg/L Ext		160.1	12/03/04
Chloride	0.22	mg/L Ext		300.0	12/07/04
Fluoride	0.16	mg/L Ext		300.0	12/07/04
Sulfate, SO ₄	9.93	mg/L Ext		300.0	12/07/04

Reviewed By: *Lisby Gray*Date 12/22/04
12/22/04 14:50

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-1 6-10'
Sample Collected: 11/10/04 11:00
Sample Receipt : 11/12/04
Date of Report : 12/22/04

SVL JOB: 114620
SAMPLE: 428166

Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	29.4	mg CaCO3/L		2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L		2320B	12/06/04
HCO3, CaCO3	29.4	mg CaCO3/L		2320B	12/06/04
pH	6.39			150.1	12/06/04
TDS	55	mg/L Ext		160.1	12/03/04
Chloride	<0.20	mg/L Ext		300.0	12/07/04
Fluoride	<0.10	mg/L Ext		300.0	12/07/04
Sulfate, SO4	3.67	mg/L Ext		300.0	12/07/04

Reviewed By: *Harley Gray*

Date 12/22/04
12/22/04 14:50

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine

PROJECT: G04880

CLIENT SAMPLE ID: GH5-1 12-16'

Sample Collected: 11/10/04 11:00

Sample Receipt : 11/12/04

Date of Report : 12/22/04

SVL JOB: 114620

SAMPLE: 428167

Matrix: ESOIL

Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	44.4	mg CaCO3/L		2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L		2320B	12/06/04
HCO3, CaCO3	44.4	mg CaCO3/L		2320B	12/06/04
pH	6.52			150.1	12/06/04
TDS	99	mg/L Ext		160.1	12/03/04
Chloride	<0.20	mg/L Ext		300.0	12/07/04
Fluoride	0.29	mg/L Ext		300.0	12/07/04
Sulfate, SO4	7.74	mg/L Ext		300.0	12/07/04

Reviewed By: *Julie L...*Date 12/22/04
12/22/04 14:50

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine

SVL JOB: 114620

PROJECT: G04880

SAMPLE: 428168

CLIENT SAMPLE ID: GH5-1 18-20'

Sample Collected: 11/10/04 11:00

Sample Receipt : 11/12/04

Matrix: ESOIL

Date of Report : 12/22/04

Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	25.0	mg CaCO3/L		2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L		2320B	12/06/04
HCO3, CaCO3	25.0	mg CaCO3/L		2320B	12/06/04
pH	6.32			150.1	12/06/04
TDS	69	mg/L Ext		160.1	12/03/04
Chloride	0.78	mg/L Ext		300.0	12/07/04
Fluoride	0.39	mg/L Ext		300.0	12/07/04
Sulfate, SO4	4.52	mg/L Ext		300.0	12/07/04

Reviewed By: *Barry Gray*

Date 12/22/04
12/22/04 14:51

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-2 0-6"
Sample Collected: 11/10/04 11:45
Sample Receipt : 11/12/04
Date of Report : 12/22/04

SVL JOB: 114620
SAMPLE: 428169

Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	30.3	mg CaCO3/L		2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L		2320B	12/06/04
HCO3, CaCO3	30.3	mg CaCO3/L		2320B	12/06/04
pH	6.21			150.1	12/06/04
TDS	537	mg/L Ext		160.1	12/03/04
Chloride	<0.20	mg/L Ext		300.0	12/07/04
Fluoride	0.29	mg/L Ext		300.0	12/07/04
Sulfate, SO4	315	mg/L Ext	25	300.0	12/07/04

Reviewed By: *Kirk Gray* Date 12/22/04
12/22/04 14:51

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
 PROJECT: G04880
 CLIENT SAMPLE ID: GH5-2 4-8"
 Sample Collected: 11/10/04 13:34
 Sample Receipt : 11/12/04
 Date of Report : 12/22/04

SVL JOB: 114620
 SAMPLE: 428170

Matrix: ESOIL
 Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	12.2	mg CaCO3/L		2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L		2320B	12/06/04
HCO3, CaCO3	12.2	mg CaCO3/L		2320B	12/06/04
pH	6.31			150.1	12/06/04
TDS	445	mg/L Ext		160.1	12/03/04
Chloride	<0.20	mg/L Ext		300.0	12/07/04
Fluoride	0.41	mg/L Ext		300.0	12/07/04
Sulfate, SO4	268	mg/L Ext	25	300.0	12/07/04

Reviewed By: _____

Terby Gray

Date 12/22/04
 12/22/04 14:51

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine

SVL JOB: 114620

PROJECT: G04880

SAMPLE: 428171

CLIENT SAMPLE ID: GH5-2 12-20'

Sample Collected: 11/10/04 13:40

Sample Receipt : 11/12/04

Matrix: ESOIL

Date of Report : 12/22/04

Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	15.6	mg CaCO3/L		2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L		2320B	12/06/04
HCO3, CaCO3	15.6	mg CaCO3/L		2320B	12/06/04
pH	6.24			150.1	12/06/04
TDS	117	mg/L Ext		160.1	12/03/04
Chloride	<0.20	mg/L Ext		300.0	12/07/04
Fluoride	0.31	mg/L Ext		300.0	12/07/04
Sulfate, SO4	55.8	mg/L Ext	5	300.0	12/07/04

Reviewed By: Kirby GrayDate 12/22/04
12/22/04 14:51

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine

SVL JOB: 114620

PROJECT: G04880

SAMPLE: 428172

CLIENT SAMPLE ID: GH5-3 0-2'

Sample Collected: 11/10/04 14:15

Sample Receipt : 11/12/04

Matrix: ESOIL

Date of Report : 12/22/04

Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	19.3	mg CaCO3/L		2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L		2320B	12/06/04
HCO3, CaCO3	19.3	mg CaCO3/L		2320B	12/06/04
pH	6.54			150.1	12/06/04
TDS	41	mg/L Ext		160.1	12/03/04
Chloride	0.21	mg/L Ext		300.0	12/07/04
Fluoride	<0.10	mg/L Ext		300.0	12/07/04
Sulfate, SO4	8.38	mg/L Ext		300.0	12/07/04

Reviewed By: *Terby Gray*Date 12/22/04

12/22/04 14:51

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-3 3A
Sample Collected: 11/13/04
Sample Receipt : 11/12/04
Date of Report : 12/22/04

SVL JOB: 114620
SAMPLE: 428173

Matrix: ESOIL
Extraction: SPLP

Determination	Result	Units	Dilution	Method	Analyzed
ALKALINITY	20.2	mg CaCO3/L		2320B	12/06/04
CO3, CaCO3	<1.0	mg CaCO3/L		2320B	12/06/04
HCO3, CaCO3	20.2	mg CaCO3/L		2320B	12/06/04
pH	6.39			150.1	12/06/04
TDS	55	mg/L Ext		160.1	12/03/04
Chloride	0.24	mg/L Ext		300.0	12/07/04
Fluoride	<0.10	mg/L Ext		300.0	12/07/04
Sulfate, SO4	5.27	mg/L Ext		300.0	12/07/04

Reviewed By: _____

Kathy Gray

Date 12/22/04

12/22/04 14:51

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

150
Quality Control Report
Part I Prep Blank and Laboratory Control Sample

Client :Phelps Dodge - Chino Mine

SVL JOB No: 114620

Analyte	Method	Matrix	Units	Prep Blank	True—LCS—Found		LCS %R	Analysis Date
Chloride	300.0	ESOIL	mg/L Ext	<0.20	5.00	4.86	97.2	12/07/04
Fluoride	300.0	ESOIL	mg/L Ext	<0.10	2.50	2.63	105.2	12/07/04
Sulfate, SO4	300.0	ESOIL	mg/L Ext	<0.30	10.0	9.90	99.0	12/07/04
ALKALINITY	2320B	ESOIL	mg/L Ext	<1.0	47.0	48.5	103.2	12/06/04
pH	150.1	ESOIL		5.05	5.40	5.44	100.7	12/06/04
TDS	160.1	ESOIL	mg/L Ext	<10	441	399	90.5	12/03/04

LEGEND:

LCS = Laboratory Control Sample

LCS %R = LCS Percent Recovery

N/A = Not Applicable

SVL ANALYTICAL, INC.

151

Quality Control Report
Part II Duplicate and Spike Analysis

Client : Phelps Dodge - Chino Mine						SVL JOB No: 114620			
Test Method	Mtx	QC SAMPLE ID		Duplicate or Found	MSD RPD%	Matrix Spike			Analysis Date
		Units	Result			Result	SPK ADD	%R	
Cl	300.0 E	1 mg/L Ex	0.22	0.30	30.8	2.16	2.00	97.0	12/07/04
F	300.0 E	1 mg/L Ex	0.16	0.12	28.6	2.17	2.00	100.5	12/07/04
SO4	300.0 E	1 mg/L Ex	9.93	9.98	0.5	14.5	5.00	91.4	12/07/04
ALK	2320B E	1 mg/L Ex	21.8	22.2	1.8	N/A	N/A	N/A	12/06/04
CO3	2320B E	1 mg/L Ex	<1.0	<1.0	UDL	N/A	N/A	N/A	12/06/04
HCO3	2320B E	1 mg/L Ex	21.8	22.2	1.8	N/A	N/A	N/A	12/06/04
pH	150.1 E	1	6.40	6.59	2.9	N/A	N/A	N/A	12/06/04
TDS	160.1 E	1 mg/L Ex	60	62	3.3	N/A	N/A	N/A	12/03/04

LEGEND:

RPD% = $\left(\frac{|\text{SAM} - \text{DUP}|}{((\text{SAM} + \text{DUP})/2)} \right) * 100$ UDL = Both SAM & DUP not detected. *Result or *Found: Interference required dilution.

RPD% = $\left(\frac{|\text{SPK} - \text{MSD}|}{((\text{SPK} + \text{MSD})/2)} \right) * 100$ M in Duplicate/MSD column indicates MSD.

SPIKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added

QC limits for MS recoveries apply only if the spike is at least 1/4 the concentration of the analyte in the sample.

Control limits for the RPD apply only if the concentration of the analyte in the sample is at least five times the reporting limit.

QC Sample 1: SVL SAM No.: 428165 Client Sample ID: GH5-1 4'

11/4/10.20 ~~11/4/10.20~~

COC No. PamPinson11-11-04

Samples
date

	11-10-01
1	11-10-01
1	11-10-01
11-10-01	
11-10-01	
1	*
11-10-01	*

SVL ANALYTICAL, INC.
One Government Gulch - Kellogg, ID 83837-0929

Page 1 of 1

CLIENT: Pam Pinson
Phelps Dodge - Chino Mine
PO Box 7

SAMPLE RECEIPT CONFIRMATION

SVL JOB No: 114620
Received: 11/12/04
Expected Due date: 11/30/04

Hurley NM 88043
FAX: (505)537-8012

114620

SVL#	M	ClientID	Sampled	Time	By	Received	Sample Comments
428164	E	GH5-1 0-2'	11/10/04	9:10		11/12/04	
428165	E	GH5-1 4'	11/10/04	9:50		11/12/04	
428166	E	GH5-1 6-10'	11/10/04	11:00		11/12/04	
428167	E	GH5-1 12-16'	11/10/04	11:00		11/12/04	
428168	E	GH5-1 18-20'	11/10/04	11:00		11/12/04	
428169	E	GH5-2 0-6"	11/10/04	11:45		11/12/04	
428170	E	GH5-2 4-8"	11/10/04	13:34		11/12/04	
428171	E	GH5-2 12-20'	11/10/04	13:40		11/12/04	
428172	E	GH5-3 0-2'	11/10/04	14:15		11/12/04	
428173	E	GH5-3 3A	11/13/04	:		11/12/04	
428321	E	EXTRACTION FLUID	/ /	:		11/18/04	

ADDITIONAL COMMENTS FOR JOB: Sample Cooler temp: 13°C.
SPLP ON THIS JOB

[] These samples will be DISPOSED 180 days after job completion.
[X] These samples will be ARCHIVED 180 days, then you will receive a letter requesting disposal options.

Please contact Ben Martin (208-784-1258) if you have questions regarding the receipt of these samples. 11/18/04 12:22

PHELPS DODGE – CHINO MINE
ATTN: PAM PINSON

Project: LUCKY BILL CANYON
GROUNDHOG STOCKPILE
No.5

SVL/SDG: 114622

PHELPS DODGE - CHINO
PROJECT: LUCKY BILL CANYON
GROUNDHOG STOCKPILE NO.5

SVL/SDG: 114622

	<u>DOCUMENT</u>	<u>PAGE NUMBERS</u>	
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	*Chain of Custody	193	194
	Sample Log-In	195	195
	*Cover Sheet	196	196
	*Cooler Receipt Forms	197	197
	Run Logs	198	201
	Confirmation	202	203
ABA'S	Data Report Forms	204	215
	Raw Data	216	228



2

NARRATIVE

PHELPS DODGE – CHINO

***Project: LUCKY BILL CANYON-GROUNDHOG
STOCKPILE NO.5***

SVL/SDG: 114622

Samples received for metals, and ABA'S.

***Samples were air-dried; an aliquot of each sample was pulverized to minus 160 mesh and analyzed.
Percent solids not applicable.***

Client identification indicated in comment field of Forms 1 and 5A.

The continuing calibration blank for lead failed; the initial analysis results for lead are reported for the continuing calibration verification and blanks.

Molybdenum was not spiked in the initial digestion; therefore the matrix spike sample was digested and analyzed

Samples for antimony and selenium on Forms 1 and 5A are flagged with an "N".

"N"flag represents the spike recovery is out of the control limits of 75-125% and the spike add is greater than or equal to 1/4 of the sample result.

Post digest spike analyzed for antimony.



NARRATIVE

PHELPS DODGE – CHINO

***Project: LUCKY BILL CANYON-GROUNDHOG
STOCKPILE No. 5***

SVL/SDG: 114622

Some samples for arsenic and selenium are flagged with a W (Form 1).

“W” flag represents the post digestion spike for Furnace AA analysis is out of the control limits of 85-115%, while sample absorbance is less than 50% of spike absorbance.

Samples for potassium and sodium copper on Forms 1 and 9 are flagged with an “E”.

“E” flag represents the percent difference of the serial dilution is greater than 10% and the original sample concentration (reported on Form 1) is greater than 50X the IDL reported on Form 10.

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

4

Lab Name: SVL_ANALYTICAL_INC. _____ Contract: _____
Lab Code: SILVER Case No.: _____ SAS No.: _____ SDG No.: 114622 _____
SOW No.: ILM04

EPA SAMPLE NO.	Lab Sample ID
S428196	S428196
S428197	S428197
S428198	S428198
S428199	S428199
S428200	S428200
S428201	S428201
S428202	S428202
S428203	S428203
S428204	S428204
S428205	S428205
S428196S	S428196S
S428196D	S428196D
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Were ICP interelement corrections applied ? Yes/No YES
Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

PROJECT: LUCKY BILL CANYON-GROUNDHOG STOCKPILE NO.5 _____
LUCKY BILL CANYON _____
CLIENT IDENTIFICATION INDICATED IN COMMENT FIELD OF FORMS 1 AND 5A. _____
POTASSIUM AND SODIUM ARE FLAGGED WITH AN "E" ON FORMS 1 AND 9. _____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____

Name: MELBA BENCICH

Date: JANUARY 12, 2005

Title: DOCUMENT CONTROL OFFICER

COVER PAGE - IN

ILM04.1

5

CLIENT SAMPLE NO.

S428196

% Solids:	100.0
-----------	-------

[illegible]

Artifacts:

PERCENT SOLIDS NOT APPLICABLE

S428197

Contract:

Case No:

SAS No:

SDG No: 114622

Lab Sample ID: S428197

LOW

Date Received: 11/12/04

§ Solids:

$$100.\overline{0}$$
[illegible]

Clarity Before:

Texture: MEDIUM

Color After: BROWN

Clarity After:

Artifacts:

Comments:

CLIENT ID: GH5-1 4'

(PULVERIZED PORTION)

PERCENT SOLIDS NOT APPLICABLE

7

CLIENT SAMPLE NO.

Lab Name: SVL ANALYTICAL INC.	Contract: _____	
Lab Code: SILVER	Case No: _____	SAS No: _____
Matrix (soil/water): SOIL		SDG No: 114622
Level (low/med): LOW		Lab Sample ID: S428198
% Solids: 100.0		Date Received: 11/12/04

[illegible]

Color Before: BROWN _____ Clarity Before: _____ Texture: MEDIUM
Color After: BROWN _____ Clarity After: _____ Artifacts: _____

CLIENT ID: GH5-1 6-10'
(PULVERIZED PORTION)
PERCENT SOLIDS NOT APPLICABLE

8

CLIENT SAMPLE NO.

5428199

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Color Before: BROWN_____ Clarity Before: _____ Texture: MEDIUM
Color After: BROWN_____ Clarity After: _____ Artifacts: _____

CLIENT ID: GH5-1 12-16'
(PULVERIZED PORTION)
PERCENT SOLIDS NOT APPLICABLE

CLIENT SAMPLE NO.

S428200

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN_____ Clarity Before: _____ Texture: MEDIUM
Color After: BROWN_____ Clarity After: _____ Artifacts: _____

Comments:

CLIENT ID: GH5-1 18-20'
(PULVERIZED PORTION)
PERCENT SOLIDS NOT APPLICABLE

八

CLIENT SAMPLE NO.

S428202

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Color Before: BROWN _____ Clarity Before: _____ Texture: MEDIUM
Color After: BROWN _____ Clarity After: _____ Artifacts: _____

PERCENT SOLIDS NOT APPLICABLE

12

CLIENT SAMPLE NO.

S428203

SDG No: 114622

Lab Sample ID: S428203

Date Received: 11/12/04

$$100.\overline{0}$$
[illegible]

Artifacts:

PERCENT SOLIDS NOT APPLICABLE

CLIENT SAMPLE NO.

Concentration Units (ug/L or mg/kg dry weight): MG/KG

[illegible]

Color Before: BROWN_____ Clarity Before: _____ Texture: MEDIUM
Color After: BROWN_____ Clarity After: _____ Artifacts: _____

Comments:

CLIENT ID: GH5-3 3A
(PULVERIZED PORTION)
PERCENT SOLIDS NOT APPLICABLE

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate ID 204 ID000019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-1 0-2'
Sample Collected: 11/10/04 9:10
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428196

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	733	TCaCO3/1000T		EPA600	12/20/04
Acid Generating	3.13	TCaCO3/1000T		EPA600	12/20/04
Acid Neut. Pot.	736	TCaCO3/1000T		EPA600	12/20/04
pH Paste	7.96			ASA M9	12/20/04
Non-Ext Sulfur, S	0.090	%		LECO	12/20/04
Pyritic Sulfur, S	0.100	%		LECO	12/20/04
Sulfate Sulfur, S	0.330	%		LECO	12/20/04
Total Sulfur, S	0.520	%		LECO	12/20/04

Reviewed By: *Barby Leary*Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate ID 205 ID000019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-1 4'
Sample Collected: 11/10/04 9:50
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428197

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	764	TCaCO3/1000T		EPA600	12/20/04
Acid Generating	5.31	TCaCO3/1000T		EPA600	12/20/04
Acid Neut. Pot.	769	TCaCO3/1000T		EPA600	12/20/04
pH Paste	8.16			ASA M9	12/20/04
Non-Ext Sulfur, S	0.010	%		LECO	12/20/04
Pyritic Sulfur, S	0.170	%		LECO	12/20/04
Sulfate Sulfur, S	<0.010	%		LECO	12/20/04
Total Sulfur, S	0.170	%		LECO	12/20/04

Reviewed By: *Lisby Gray*Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-1 6-10'
Sample Collected: 11/10/04 11:00
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428198

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	63.5	TCaCO3/1000T		EPA600	12/20/04
Acid Generating	<0.30	TCaCO3/1000T		EPA600	12/20/04
Acid Neut. Pot.	63.5	TCaCO3/1000T		EPA600	12/20/04
pH Paste	8.09			ASA M9	12/20/04
Non-Ext Sulfur,S	<0.010	%		LECO	12/20/04
Pyritic Sulfur,S	<0.010	%		LECO	12/20/04
Sulfate Sulfur,S	<0.010	%		LECO	12/20/04
Total Sulfur, S	<0.010	%		LECO	12/20/04

Reviewed By: Terby Gray Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-1 12-16'
Sample Collected: 11/10/04 11:00
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428199

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	16.5	TCaCO3/1000T		EPA600	12/20/04
Acid Generating	<0.30	TCaCO3/1000T		EPA600	12/20/04
Acid Neut. Pot.	16.5	TCaCO3/1000T		EPA600	12/20/04
pH Paste	7.72			ASA M9	12/20/04
Non-Ext Sulfur,S	<0.010	%		LECO	12/20/04
Pyritic Sulfur,S	<0.010	%		LECO	12/20/04
Sulfate Sulfur,S	<0.010	%		LECO	12/20/04
Total Sulfur, S	<0.010	%		LECO	12/20/04

Reviewed By: *Deby Gray*Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-1 18-20'
Sample Collected: 11/10/04 11:00
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428200

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	13.7	TCaCO ₃ /1000T		EPA600	12/20/04
Acid Generating	<0.30	TCaCO ₃ /1000T		EPA600	12/20/04
Acid Neut. Pot.	13.7	TCaCO ₃ /1000T		EPA600	12/20/04
pH Paste	8.39			ASA M9	12/20/04
Non-Ext Sulfur, S	<0.010	%		LECO	12/20/04
Pyritic Sulfur, S	<0.010	%		LECO	12/20/04
Sulfate Sulfur, S	<0.010	%		LECO	12/20/04
Total Sulfur, S	<0.010	%		LECO	12/20/04

Reviewed By: *Andy Gray*Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch

P.O. Box 929

Kellogg, Idaho 83837-0929

Phone: (208)784-1258

Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-2 0-6"
Sample Collected: 11/10/04 13:34
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428201

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	319	TCaCO3/1000T		EPA600	12/20/04
Acid Generating	24.1	TCaCO3/1000T		EPA600	12/20/04
Acid Neut. Pot.	343	TCaCO3/1000T		EPA600	12/20/04
pH Paste	7.25			ASA M9	12/20/04
Non-Ext Sulfur, S	0.090	%		LECO	12/20/04
Pyritic Sulfur, S	0.770	%		LECO	12/20/04
Sulfate Sulfur, S	0.340	%		LECO	12/20/04
Total Sulfur, S	1.20	%		LECO	12/20/04

Reviewed By: *Lesley L. L...*Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: 210 ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-2 4-8"
Sample Collected: 11/10/04 13:40
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428202

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	451	TCaCO ₃ /1000T		EPA600	12/20/04
Acid Generating	0.94	TCaCO ₃ /1000T		EPA600	12/20/04
Acid Neut. Pot.	452	TCaCO ₃ /1000T		EPA600	12/20/04
pH Paste	7.61			ASA M9	12/20/04
Non-Ext Sulfur, S	0.010	%		LECO	12/20/04
Pyritic Sulfur, S	0.030	%		LECO	12/20/04
Sulfate Sulfur, S	0.200	%		LECO	12/20/04
Total Sulfur, S	0.240	%		LECO	12/20/04

Reviewed By: *Birley Gray*Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-2 12-20'
Sample Collected: 11/10/04 13:40
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428203

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	91.7	TCaCO3/1000T		EPA600	12/20/04
Acid Generating	7.81	TCaCO3/1000T		EPA600	12/20/04
Acid Neut. Pot.	99.5	TCaCO3/1000T		EPA600	12/20/04
pH Paste	7.69			ASA M9	12/20/04
Non-Ext Sulfur, S	0.010	%		LECO	12/20/04
Pyritic Sulfur, S	0.250	%		LECO	12/20/04
Sulfate Sulfur, S	0.090	%		LECO	12/20/04
Total Sulfur, S	0.350	%		LECO	12/20/04

Reviewed By: *Lesley Gray*Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-3 0-2'
Sample Collected: 11/10/04 14:15
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428204

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	715	TCaCO3/1000T		EPA600	12/20/04
Acid Generating	0.31	TCaCO3/1000T		EPA600	12/20/04
Acid Neut. Pot.	715	TCaCO3/1000T		EPA600	12/20/04
pH Paste	7.89			ASA M9	12/20/04
Non-Ext Sulfur, S	0.010	%		LECO	12/20/04
Pyritic Sulfur, S	0.010	%		LECO	12/20/04
Sulfate Sulfur, S	0.080	%		LECO	12/20/04
Total Sulfur, S	0.100	%		LECO	12/20/04

Reviewed By: *Kirby Leay*Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

One Government Gulch ■ P.O. Box 929 ■ Kellogg, Idaho 83837-0929 ■ Phone: (208)784-1258 ■ Fax: (208)783-0891

Certificate: ID ID00019

CLIENT : Phelps Dodge - Chino Mine
PROJECT: G04880
CLIENT SAMPLE ID: GH5-3 3A
Sample Collected: 11/10/04
Sample Receipt : 11/12/04
Date of Report : 1/12/05

SVL JOB: 114622
SAMPLE: 428205

Matrix: SOIL

Determination	Result	Units	Dilution	Method	Analyzed
ABP	768	TCaCO3/1000T		EPA600	12/20/04
Acid Generating	0.31	TCaCO3/1000T		EPA600	12/20/04
Acid Neut. Pot.	768	TCaCO3/1000T		EPA600	12/20/04
pH Paste	7.95			ASA M9	12/20/04
Non-Ext Sulfur,S	<0.010	%		LECO	12/20/04
Pyritic Sulfur,S	0.010	%		LECO	12/20/04
Sulfate Sulfur,S	0.080	%		LECO	12/20/04
Total Sulfur, S	0.090	%		LECO	12/20/04

Reviewed By: *Julie Gray*Date 1/12/05
1/12/05 8:32

AZ: AZ0538 CA: NO. 2080 CO: 8/18/04 ID: ID00019 NV: 7/31/04 WA: C074

SVL ANALYTICAL, INC.

Quality Control Report
Part I Prep Blank and Laboratory Control Sample

Client :Phelps Dodge - Chino Mine					SVL JOB No: 114622			Analysis
Analyte	Method	Matrix	Units	Prep Blank	True—LCS—Found	LCS %R	Date	
Acid Generating	EPA600	SOIL	TCaCO3/k	N/A	9.36	9.59	102.5	12/20/04
Acid Neut. Pot.	EPA600	SOIL	TCaCO3/k	N/A	52.0	49.6	95.4	12/20/04
pH Paste	ASA M9	SOIL		6.48	8.45	8.43	99.8	12/20/04
Non-Ext Sulfur,S	LECO	SOIL	%	<0.010	N/A		N/A	12/20/04
Pyritic Sulfur,S	LECO	SOIL	%	<0.010	N/A		N/A	12/20/04
Sulfate Sulfur,S	LECO	SOIL	%	<0.010	N/A		N/A	12/20/04
Total Sulfur, S	LECO	SOIL	%	<0.010	0.298	0.300	100.7	12/20/04

LEGEND:

LCS = Laboratory Control Sample

LCS %R = LCS Percent Recovery

N/A = Not Applicable

Client :Phelps Dodge - Chino Mine					SVL JOB No: 114622				
Test Method Mtx		QC SAMPLE ID		Duplicate or MSD		Matrix Spike		Analysis	
		Units	Result	Found	RPD%	Result	SPK ADD	%R	Date
ABP	EPA600 S	1 TCaCO3/	733	731	0.3	N/A	N/A	N/A	12/20/04
AGP	EPA600 S	1 TCaCO3/	3.13	3.13	0.0	N/A	N/A	N/A	12/20/04
ANP	EPA600 S	1 TCaCO3/	736	735	0.1	N/A	N/A	N/A	12/20/04
S N-EX	LECO S	1 %	0.090	0.090	0.0	N/A	N/A	N/A	12/20/04
S-PYR	LECO S	1 %	0.100	0.100	0.0	N/A	N/A	N/A	12/20/04
S-SO4	LECO S	1 %	0.330	0.330	0.0	N/A	N/A	N/A	12/20/04
S-TOT	LECO S	1 %	0.520	0.520	0.0	N/A	N/A	N/A	12/20/04

LEGEND:

RPD% = $(|SAM - DUP| / ((SAM + DUP)/2)) * 100$ UDL = Both SAM & DUP not detected. *Result or *Found: Interference required dilution.

RPD% = $(|SPK - MSD| / ((SPK + MSD)/2)) * 100$ M in Duplicate/MSD column indicates MSD.

SPIKE ADD column, A = Post Digest Spike; %R = Percent Recovery N/A = Not Analyzed; R > 4S = Result more than 4X the Spike Added

QC limits for MS recoveries apply only if the spike is at least 1/4 the concentration of the analyte in the sample.

Control limits for the RPD apply only if the concentration of the analyte in the sample is at least five times the reporting limit.

QC Sample 1: SVL SAM No.: 428196 Client Sample ID: GH5-1 0-2'

Phone: 208-784-1258
Fax: 208-783-0891

114622 = 114620
Cooler Temp 12.8°

Page 1 of 1

[illegible]

CLIENT: Pam Pinson
Phelps Dodge - Chino Mine
PO Box 7

SAMPLE RECEIPT CONFIRMATION

SVL JOB No: 114622
Received: 11/12/04
Expected Due date: 11/30/04

Hurley NM 88043
FAX: (505)537-8012

114622

SVL#	M	ClientID	Sampled	Time	By	Received	Sample Comments
428196	S	GH5-1 0-2'	11/10/04	9:10		11/12/04	
428197	S	GH5-1 4'	11/10/04	9:50		11/12/04	
428198	S	GH5-1 6-10'	11/10/04	11:00		11/12/04	
428199	S	GH5-1 12-16'	11/10/04	11:00		11/12/04	
428200	S	GH5-1 18-20'	11/10/04	11:00		11/12/04	
428201	S	GH5-2 0-6"	11/10/04	13:34		11/12/04	
428202	S	GH5-2 4-8"	11/10/04	13:40		11/12/04	
428203	S	GH5-2 12-20'	11/10/04	13:40		11/12/04	
428204	S	GH5-3 0-2'	11/10/04	14:15		11/12/04	
428205	S	GH5-3 3A	11/10/04	:		11/12/04	

ADDITIONAL COMMENTS FOR JOB: Sample Cooler temp: 14°C.
TOT METALS, ABAs, PASTE pH

[] These samples will be DISPOSED 180 days after job completion.
[X] These samples will be ARCHIVED 180 days, then you will receive a letter requesting disposal options.

Please contact Ben Martin (208-784-1258) if you have questions regarding the receipt of these samples. 11/18/04 11:45

APPENDIX B-2

ENERGY LABS DATASHEETS



ANALYTICAL SUMMARY REPORT

February 04, 2005

Pam Pinson

Chino Mines

PO Box 7

Hurley, NM 88043

Workorder No.: B05010538

Project Name: Lucky Bill Groundhog No. 5

Energy Laboratories Inc received the following 8 samples from Chino Mines on 1/12/2005 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B05010538-001	GH5-1, 6-10 in	01/11/05 0:00	01/12/05	Soil	Coarse Fragments Conductivity, Saturated Paste Nitrate as N, KCL Extract Organic Matter/Organic Carbon-WB pH, Saturated Paste Phosphorus-Olsen Particle Size Analysis Texture
B05010538-002	GH5-2, 4-8 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-003	GH5-3, 0-2 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-004	GH5-2, 12-20 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-005	GH5-2, 0-6 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-006	GH5-1, 18-20 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-007	GH5-1, 12-16 in	01/11/05 0:00	01/12/05	Soil	Same As Above
B05010538-008	GH5-1, 4 ft Grab	01/11/05 0:00	01/12/05	Soil	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except if noted in report comments or the Case Narrative.

If you have any questions regarding these tests results, please call.

Report Approved By: 



ENERGY LABORATORIES, INC. • P.O. Box 30916 • 1120 South 27th Street • Billings, MT 59107-0916
800-735-4489 • 406-252-6325 • 406-252-6069 fax • eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Chino Mines
Project: Lucky Bill Groundhog No. 5
Lab ID: B05010538-001
Client Sample ID: GH5-1, 6-10 in

Report Date: 02/04/05
Collection Date: 01/11/05
Date Received: 01/12/05
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
PHYSICAL CHARACTERISTICS							
Coarse Fragments	67	wt%		2		ASA15-5	01/25/05 16:27 / srm
Sand	64	%		1		ASA15-5	02/01/05 19:51 / srm
Silt	16	%		1		ASA15-5	02/01/05 19:51 / srm
Clay	20	%		1		ASA15-5	02/01/05 19:51 / srm
Texture	SCL					ASA15-5	02/01/05 19:51 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.80	s.u.		0.10		ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	0.83	mmhos/cm		0.01		ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS							
Phosphorus, Olsen	ND	mg/kg		1		ASA24-5	01/26/05 09:51 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA38-3	01/26/05 15:14 / srm
Organic Matter	0.19	%		0.020		ASA29-3	01/31/05 16:03 / srm

Report
Definitions: RL - Analyte reporting limit.
QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Chino Mines
Project: Lucky Bill Groundhog No. 5
Lab ID: B05010538-002
Client Sample ID: GH5-2, 4-8 in

Report Date: 02/04/05
Collection Date: 01/11/05
Date Received: 01/12/05
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
PHYSICAL CHARACTERISTICS							
Coarse Fragments	63	wt%		2		ASA15-5	01/25/05 16:27 / srm
Sand	68	%		1		ASA15-5	02/01/05 19:51 / srm
Silt	15	%		1		ASA15-5	02/01/05 19:51 / srm
Clay	17	%		1		ASA15-5	02/01/05 19:51 / srm
Texture	SL					ASA15-5	02/01/05 19:51 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	2.72	mmhos/cm		0.01		ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS							
Phosphorus, Olsen	ND	mg/kg		1		ASA24-5	01/26/05 09:55 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA38-3	01/26/05 15:15 / srm
Organic Matter	0.57	%		0.020		ASA29-3	01/31/05 16:03 / srm

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Chino Mines
Project: Lucky Bill Groundhog No. 5
Lab ID: B05010538-003
Client Sample ID: GH5-3, 0-2 in

Report Date: 02/04/05
Collection Date: 01/11/05
Date Received: 01/12/05
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
PHYSICAL CHARACTERISTICS							
Coarse Fragments	67	wt%		2		ASA15-5	01/25/05 16:27 / srm
Sand	72	%		1		ASA15-5	02/01/05 19:51 / srm
Silt	11	%		1		ASA15-5	02/01/05 19:51 / srm
Clay	17	%		1		ASA15-5	02/01/05 19:51 / srm
Texture	SL					ASA15-5	02/01/05 19:51 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.70	s.u.		0.10		ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	1.06	mmhos/cm		0.01		ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS							
Phosphorus, Olsen	1	mg/kg		1		ASA24-5	01/26/05 09:57 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA38-3	01/26/05 15:16 / srm
Organic Matter	0.71	%		0.020		ASA29-3	01/31/05 16:03 / srm

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Chino Mines
Project: Lucky Bill Groundhog No. 5
Lab ID: B05010538-004
Client Sample ID: GH5-2, 12-20 in

Report Date: 02/04/05
Collection Date: 01/11/05
Date Received: 01/12/05
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
PHYSICAL CHARACTERISTICS							
Coarse Fragments	65	wt%		2		ASA15-5	01/25/05 16:27 / srm
Sand	68	%		1		ASA15-5	02/01/05 19:51 / srm
Silt	12	%		1		ASA15-5	02/01/05 19:51 / srm
Clay	20	%		1		ASA15-5	02/01/05 19:51 / srm
Texture	SCL					ASA15-5	02/01/05 19:51 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	2.58	mmhos/cm		0.01		ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS							
Phosphorus, Olsen	ND	mg/kg		1		ASA24-5	01/26/05 09:58 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA38-3	01/26/05 15:16 / srm
Organic Matter	0.86	%		0.020		ASA29-3	01/31/05 16:03 / srm

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



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LABORATORY ANALYTICAL REPORT

Client: Chino Mines
Project: Lucky Bill Groundhog No. 5
Lab ID: B05010538-005
Client Sample ID: GH5-2, 0-6 in

Report Date: 02/04/05
Collection Date: 01/11/05
Date Received: 01/12/05
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
PHYSICAL CHARACTERISTICS							
Coarse Fragments	57	wt%		2		ASA15-5	01/25/05 16:27 / srm
Sand	56	%		1		ASA15-5	02/01/05 19:51 / srm
Silt	21	%		1		ASA15-5	02/01/05 19:51 / srm
Clay	23	%		1		ASA15-5	02/01/05 19:51 / srm
Texture	SCL					ASA15-5	02/01/05 19:51 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.10	s.u.		0.10		ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	2.32	mmhos/cm		0.01		ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS							
Phosphorus, Olsen	5	mg/kg		1		ASA24-5	01/26/05 09:59 / srm
Nitrate as N, KCL Extract	1	mg/kg		1		ASA38-3	01/26/05 15:17 / srm
Organic Matter	0.84	%		0.020		ASA29-3	01/31/05 16:04 / srm

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Chino Mines
Project: Lucky Bill Groundhog No. 5
Lab ID: B05010538-006
Client Sample ID: GH5-1, 18-20 in

Report Date: 02/04/05
Collection Date: 01/11/05
Date Received: 01/12/05
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
PHYSICAL CHARACTERISTICS							
Coarse Fragments	26	wt%		2		ASA15-5	01/25/05 16:27 / srm
Sand	68	%		1		ASA15-5	02/01/05 19:51 / srm
Silt	11	%		1		ASA15-5	02/01/05 19:51 / srm
Clay	21	%		1		ASA15-5	02/01/05 19:51 / srm
Texture	SCL					ASA15-5	02/01/05 19:51 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	0.44	mmhos/cm		0.01		ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS							
Phosphorus, Olsen	ND	mg/kg		1		ASA24-5	01/26/05 10:01 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA38-3	01/26/05 15:18 / srm
Organic Matter	0.19	%		0.020		ASA29-3	01/31/05 16:04 / srm

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Chino Mines
Project: Lucky Bill Groundhog No. 5
Lab ID: B05010538-007
Client Sample ID: GH5-1, 12-16 in

Report Date: 02/04/05
Collection Date: 01/11/05
Date Received: 01/12/05
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
PHYSICAL CHARACTERISTICS							
Coarse Fragments	42	wt%		2		ASA15-5	01/25/05 16:27 / srm
Sand	64	%		1		ASA15-5	02/01/05 19:51 / srm
Silt	12	%		1		ASA15-5	02/01/05 19:51 / srm
Clay	24	%		1		ASA15-5	02/01/05 19:51 / srm
Texture	SCL					ASA15-5	02/01/05 19:51 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	0.33	mmhos/cm		0.01		ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS							
Phosphorus, Olsen	ND	mg/kg		1		ASA24-5	01/26/05 10:02 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA38-3	01/26/05 15:20 / srm
Organic Matter	0.14	%		0.020		ASA29-3	01/31/05 16:04 / srm

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.



LABORATORY ANALYTICAL REPORT

Client: Chino Mines
Project: Lucky Bill Groundhog No. 5
Lab ID: B05010538-008
Client Sample ID: GH5-1, 4 ft Grab

Report Date: 02/04/05
Collection Date: 01/11/05
Date Received: 01/12/05
Matrix: Soil

Analyses	Result	Units	Qual	MCL/		Method	Analysis Date / By
				RL	QCL		
PHYSICAL CHARACTERISTICS							
Coarse Fragments	90	wt%		2		ASA15-5	01/25/05 16:27 / srm
Sand	78	%		1		ASA15-5	02/01/05 19:51 / srm
Silt	7	%		1		ASA15-5	02/01/05 19:51 / srm
Clay	15	%		1		ASA15-5	02/01/05 19:51 / srm
Texture	SL					ASA15-5	02/01/05 19:51 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE							
pH, sat. paste	7.60	s.u.		0.10		ASAM10-3.2	01/25/05 16:27 / srm
Conductivity, sat. paste	2.24	mmhos/cm		0.01		ASA10-3	01/25/05 16:27 / srm
CHEMICAL CHARACTERISTICS							
Phosphorus, Olsen	2	mg/kg		1		ASA24-5	01/26/05 10:04 / srm
Nitrate as N, KCL Extract	1	mg/kg		1		ASA38-3	01/26/05 15:21 / srm
Organic Matter	0.67	%		0.020		ASA29-3	01/31/05 16:04 / srm

Report RL - Analyte reporting limit.
Definitions: QCL - Quality control limit.

MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

Energy Laboratories Inc

Sample Receipt Checklist

Client Name **Chino Mines**

Date and Time Received: **1/12/2005**

Work Order Number **B05010538**

Received by **dlr**

Checklist completed by: *[Signature]*

Signature

Date

Reviewed by _____

Initials

Date

Carrier name **UPS ARS Ground**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	NA °C
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

Adjusted? _____

Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments:

Corrective Action _____

PLEASE PRINT, provide as much information as possible.
Refer to corresponding notes on reverse side.

Company Name: Chino Mines			Project Name, PWS #, Permit #, Etc.: Lucky Bill Groundhog No. #5		
Report Address: Pam Pinson P.O. Box 7 Hurley, NM 88043			Contact Name, Phone, Fax, E-mail: Pam Pinson 505-537-4213 Lewis Munk 505-821-3043		
Invoice Address: Pam Pinson P.O. Box 7 Hurley NM 88043			Invoice Contact & Phone #: Pam Pinson		Sampler Name if other than Contact: ppinson@phelpsdoe.com Lewis-Munk@golder.com
Report Required For: POTW/WWTP DW Other			Purchase Order #: R0600063		ELI Quote #:
Special Report Formats - ELI must be notified prior to sample submittal for the following: NELAC <input type="checkbox"/> A2LA <input type="checkbox"/> Level IV <input type="checkbox"/> Other _____ EDD/EDT <input type="checkbox"/> Format _____			ANALYSIS REQUESTED		Notify ELI prior to RUSH sample submittal for additional charges and scheduling
Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Bioassay Other			SEE ATTACHED		Comments: 1. See Attached email for Lewis Munk's instructions.
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)			Normal Turnaround (TAT)		Receipt Temp NA °C
Collection Date			RUSH Turnaround (TAT)		Cooler ID(s) B2D1/B2465
Collection Time			MATRIX		Custody Seal <input checked="" type="checkbox"/> N
1 GH5-1 6-10"			1 X		Intact <input checked="" type="checkbox"/> N
2 GH5-2 4-8"			1 X		Signature <input checked="" type="checkbox"/> N
3 GH5-3 0-2"			1 X		Match
4 GH5-2 12-20"			1 X		Lab ID
5					LABORATORY USE ONLY B2D10538-001 002 003 004
6					
7					
8					
9					
10					
Custody Record MUST be Signed			Retinquired by: Pam Pinson Date/Time: 7-25		Received by: Ed Ruby Date/Time: 01/21/05
Sample Disposal: X			Shipped by: Chino - UPS Date/Time: ARS 6/2		Received by: LABORATORY USE ONLY
Return to client: X			Shipped by: ARS 6/2		Sample Type: _____ # of fractions _____



Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT, provide as much information as possible.

Refer to corresponding notes on reverse side.

Company Name: <u>Chino Mines Co. / Pam Pison</u>			Project Name, PWS #, Permit #, Etc.: <u>Lucky Bill Canyon Groundhog #5</u>											
Report Address: <u>PO Box 7</u>			Contact Name, Phone, Fax, E-mail: <u>Same as other COC</u>					Sampler Name if other than Contact:						
Invoice Address: <u>Hurley, NM 88043</u>			Invoice Contact & Phone #: <u>↓</u>					Purchase Order #: <u>RO600063</u>		ELI Quote #:				
Report Required For: <u>POTW/WWTP</u> <u>DW</u> <u>Other</u> Special Report Formats - ELI must be notified prior to sample submittal for the following: NELAC <input type="checkbox"/> A2LA <input type="checkbox"/> Level IV <input type="checkbox"/> Other _____ EDD/EDT <input type="checkbox"/> Format _____			Number of Containers Sample Type: A W S V B O Air Water Soils/Solids Vegetation Biosassay Other		ANALYSIS REQUESTED					Notify ELI prior to RUSH sample submittal for additional charges and scheduling		Receipt Temp <u>NA</u> °C		
SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)			Collection Date	Collection Time	MATRIX	SEE ATTACHED					Comments: <u>1 See Attached email for Lewis Munks instructions</u>		Cooler ID(s) <u>20SD1, 20465</u>	
1 GHS-2 0-6"					Soil	X								
2 GHS-2 18-20"					"	X								
3 GHS-1 12-16"					"	X								
4 GHS-1 4' Grab					"	X								
5														
6														
7														
8														
9														
10														
Custody Record MUST be Signed			Relinquished by: <u>Pam Pison</u>		Date/Time: <u>1-7-05</u>		Shipped by: <u>Chino Mines</u>		Received by: <u>[Signature]</u>		Date/Time: <u>01/12/05 0915</u>			
			Relinquished by:		Date/Time:		Shipped by: <u>VP's HSG (2)</u>		Received by:		Date/Time:			
			Sample Disposal: Return to client: <u>X</u>		Lab Disposal:		Sample Type:		# of fractions					
LABORATORY USE ONLY														

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, & links.